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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as an indication that they are necessarily available for export

NOTICE TO SUBSCRIBERS

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DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 *of* 1940, *and No.* 359 *of* 1941

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.0 *p.m.*
The office is closed on Saturdays

Home Railway Dividends and Earnings

THE final dividends for 1941 of the four main-line railway companies in practically all cases came near to fulfilling the most optimistic expectations which had been seriously entertained. The announcements by the boards are given in detail at page 319 and show that the aggregate revenue of the four railway companies was £39,763,265, an increase of £1,145,796 as compared with the year 1940; this includes revenue accruing to the companies, apart from the Government payments under the revised financial agreement, amounting to £2,008,409 or £1,608,970 more than in the previous year. The London Midland & Scottish Railway Company shows the greatest increase, £543,511, in total net revenue, and is raising the dividend for the year on its ordinary stock by ½ per cent. to 2 per cent. The London & North Eastern Railway Company has advanced its net revenue by £296,035, and is paying its 4 per cent. second preference stockholders 2¾ per cent., as compared with 2 per cent. for the previous year. The Southern Railway Company has secured £178,470 more net revenue and is distributing 1¾ per cent., against 1¼ per cent., on its deferred ordinary. The Great Western Railway Company has £137,780 more net revenue; the final dividend proposed on the consolidated ordinary stock is 2½ per cent., making 4 per cent. for the year, which is the same as for 1940. The "C" stockholders of the London Passenger Transport Board will get a final distribution of 2¼ per cent., making the total for the year up to 2¾ per cent., which compares with 3 per cent. The last accounts covered eighteen months due to the changing of the board's financial year to bring it into line with those of the main-line railway companies. Of the 3 per cent. paid for 1940, ¾ per cent. was paid on account of the year ended June 30, 1940, but later this payment was deemed to be on account of the year to December 31, 1940. Under the original pool agreement the board's share of net revenue was £4,811,981 for 1940; under the revised agreement it receives £4,835,705 from the Government.

Benefit to Exchequer

As will be seen from the table at page 319 the dividends on the L.M.S.R., L.N.E.R., and Southern junior stocks are the best for some years, small though they be in relation to the volume and importance of the work the companies are doing. Those who cavil at the thought of any additional return to the patient railway stockholder, who in the past has often enough forgone any return on his investment, and whose sacrifices have made possible the railway system of this country in its present efficiency, might do well to reflect that in existing circumstances the general body of taxpayers is benefiting at the expense of the railway proprietors. There can be no doubt that actual earnings of the lines last year were considerably in excess of the rental the companies have received—some estimates put the surplus at about £4,000,000. Whatever the balance may be it is a benefit to the Exchequer under the terms of the revised agreement. Nor will the higher payments fail to go in considerable part to the Treasury. It would appear from the statements issued towards the end of last week that the directors of the railway companies have not charged war damage liability against the 1941 figures. It may be that it has been decided to spread the incidence of war damage costs over a number of years. The increase of £100,000 to £400,000 in the L.M.S.R. allocation "to wartime contingencies," for instance, is probably made with other factors in mind. No indication has been forthcoming yet of how it is proposed to deal with the contributions in respect of war damage.

Promotion in Absence

It will be a source of satisfaction to a good many railwaymen who either because of their special qualifications, or for other reasons are at present serving away from their companies, that they can be assured that this absence will not hamper their normal promotion in the railway service. In a good many industries there is a very real fear that out of sight means out of mind, and it is no secret that this has

had some small deterrent effect in securing for the State the services of men who are making progress in their industrial capacities. A recent reminder that on the railways when the question of promotion arises those who would be considered in the normal way, but for their preoccupation elsewhere in the national interest, are not overlooked is provided by the decision of the Southern Railway Company to appoint Lt.-Colonel A. C. Payne to be Assistant London East Divisional Superintendent. Hitherto Colonel Payne's normal railway activity has been that involved in his office of Assistant to the London Central Divisional Superintendent; his wartime work is with the Movement Control, Middle East Forces. That example comes most readily to mind no doubt because it is contained in one of the more recent announcements of appointments, but a little delving would probably disclose a good many similar instances. It will be recalled that in some instances recent appointments on the L.N.E.R. have been prefixed by " acting."

British Investments in Brazilian Railways

During the year 1941 there was a considerable improvement in the return on British capital invested in railway undertakings in Brazil, although it cannot be said that the yield is other than very small. According to a compilation made by *The South American Journal*, the amount of British capital invested in Brazilian railways and quoted on the London Stock Exchange on December 31 last was £36,449,419; on that amount £360,156 or 0·98 per cent. was forthcoming in interest; the amount of capital which was unremunerated was £23,715,591. That was an improvement in comparison with 1940 when interest amounted to £254,097 or 0·6 per cent., and the amount of capital receiving no interest was £27,978,136. The average yield of Brazilian railways has been low for many years, and compares favourably with other groups of Brazilian securities. Although it is not high in any case the yield on Government bonds in 1941 was no more than 1·1 per cent. on the £147,176,257 invested, and over the total investment in Brazil of £241,651,925 it was no more than 1·39 per cent. The miscellaneous group in which there is £58,026,249 invested shows the best return, and that is but 2·39 per cent.

British Railway Capital in Chile

The amount of money invested in railways in Chile and quoted on the London Stock Exchange at the end of last year was £17,321,406, practically the same as at the end of the previous year. The interest received, £180,845, and the yield, 1 per cent., were similarly unchanged, as also, of course, was the amount receiving no interest, which was £10,950,544. It will be seen, therefore, that on the total amount of British money invested in this group 63 per cent. received nothing last year. It should be pointed out that the Antofagasta (Chili) & Bolivia Railway Co. Ltd. capital is included in the Chilean group, although a substantial part of the system is in Bolivia. The return on British money invested in Chilean railways has been below 2 per cent. since 1931, in which year it was 3·8 per cent., and only £1,111,440 went unremunerated. Previous to that time the rate of interest varied between 5 and 5½ per cent. but in 1926 it was no less than 15·9 per cent.; in that year all the capital employed was remunerative. In general it may be said that the amount of British capital interested in Chile has been declining since 1930, and since that year the return has also fallen off badly, for Chile, from having enjoyed almost throughout its history the reputation of having among the soundest and best credit records of any South American Republic, has in the last 10 years suffered from the collapse of the nitrate industry. Total British investment in 1930 was rather more than £68,000,000, whereas at the end of last year it was £51,613,656.

The Basis of Return Fares

Since the publication at page 547 of our November 28 issue of a brief survey of the basis of passenger fare structure on British railways, we have received a number of enquiries about the position of return tickets, and the following notes outline the position. The scales of charges for the conveyance of passengers on the British main-line railways are laid down by the Railway Rates Tribunal and are set out in Statutory Rules & Orders of July 6, 1927. They provide for a charge of 1½d. a mile single for every passenger carried in a third class carriage. In computing the mileage, the minimum charge is as for one mile; fractions of a mile consisting of one half or less are reckoned as half a mile; and fractions of a mile exceeding one half are reckoned as one mile. For single fares under 1s. fractions of one halfpenny are charged as one halfpenny, but, for single fares of 1s. and over, fractions of 1d. are charged as 1d. The bases of reduced fares, such as monthly return tickets, as well as the method of rounding the fractions, are within the discretion of the railway companies, subject to being reported to the Ministry of Transport (now the Ministry of War Transport), in accordance with the provisions of Section 41/1 of the Railways Act, 1921. On October 1, 1937, the basic fares were increased by 5 per cent., and since the outbreak of war further fare increases have been made, though there has been no change in the basic structure. The war increases total 16⅔ per cent., of which 10 per cent. became effective on May 1, 1940, and the balance on December 1, 1940, from which date 16⅔ per cent. was substituted for the previous 10 per cent. Actually, season tickets and workmen's tickets were excluded from the second increase, as well as local fares in the London area.

An American Broadcast on Signalling

On the occasion of the autumn meeting of the Signal Section of the Association of American Railroads at Colorado Springs, September 30 to October 2, 1941, a broadcast on signalling, under the title of " Guardians of the Way," was arranged under the direction of Mr. A. R. Beatty, the Special Representative of the Association at the meeting, with the co-operation of four signal engineers, namely, Mr. G. K. Thomas, System Signal Engineer, Santa Fe Railway, Chairman of the Section; Mr. J. J. Corcoran, its 1st Vice-Chairman and Signal Engineer of the New York Central System; Mr. A. H. Rice, Signal Engineer and Telegraph Superintendent, Delaware & Hudson RR.; and Mr. F. W. Pfleging, General Signal Engineer of the Union Pacific Railroad. Each speaker dealt with a range of questions asked by Mr. Beatty, framed to cover the leading principles of signalling, with some references to their development and the early appliances first used to give effect to them, and to provide a brief description of the types of signal and signal aspects met with today on American railways. The working of points and the purpose of interlocking were, of course, touched on, and such refinements as continuous cab signals, automatic stops, and inductive train control, as well as centralised traffic control, received due notice. The annual conventions of the Signal Section of the A.A.R. are always well attended and attract considerable attention in the locality, so that there were probably many listeners to this broadcast, which was well adapted to its useful purpose.

A, E, and HA Superheaters

The reasons for the adoption of what is known as the E type of multi-unit superheater in preference to the older A pattern in American practice were discussed in our issue of November 7, 1941, p. 464, but it was realised that a large number of locomotives in traffic with A-type equipment might be reboilered more advantageously with a new superheater design which would be interchangeable with the existing plant, particularly as to the firebox tube plate, and yet which would give a superheating efficiency better than the A and approaching that of the E. Extensive trials were made with equipment dividing the steam into smaller pipes; giving greater turbulence to both steam and surrounding flue gas; improving the counterflow conditions; and controlling the proportion of gas flowing within the nest of elements to that flowing between the elements and the flue-tube wall. The two first methods increased the friction of gas flow and the draught loss; the third way increased the rate of heat transfer to the flue rather than to the elements; but

preliminary tests with the fourth arrangement showed a superheat temperature about 50° F. higher than obtained with the normal A type. Track tests resulted in the evolution of a modified form in which there is an annular steam path at the front end providing good counterflow conditions; the back end remains much the same as in the A model. The new type, designated HA, is used for conversions where interchangeability with existing A-type equipment is deemed essential.

Running in Locomotives

A novel method is being adopted at the San Bernardino shops of the Atchison, Topeka & Santa Fe Railroad for running in newly overhauled locomotives, in order to reduce the period of secondary running-in duties when they enter revenue service. On emerging from the shops the locomotive is fired up; brakes, injectors, lubricators, and air pumps are tested; and with all moving parts properly lubricated and axlebox wedges free it is moved to what is known as the slip track. This is a length of 900 ft. of line, practically level, the rails of which are kept oiled with fuel oil by a special arrangement of pipe rigging from the engine tender. The locomotive driving wheels are then deliberately slipped on the oiled rails at a speed equivalent to 12 to 15 m.p.h., to warm up the bearings, which usually generate a temperature of 100 to 120° F. in the first hour. During the second hour, at an increased equivalent speed of 20 m.p.h., the temperature may rise to 135 or 145°, but during the third hour, at 30 m.p.h., the axlebox temperature normally begins to decrease. Higher speeds are not attempted, as they might lead to excessive rail wear on the slip track. According to the extent of the overhaul through which the engine has passed, slipping is continued for 3 to 5 hr. It serves to break in the motion parts and cylinder and valve packings, all of which are watched closely while the test is in progress. The locomotive is not secured while this is happening, and moves gradually toward one end of the test track, when it is reversed and returns to the other end. A track of this description, subjected constantly to the abrading effect of slipping locomotive wheels, might serve at the same time as a testing ground of the relative wearing capacity of different types of rail steel.

American Three-Cylinder Locomotives

In commenting editorially upon the subject of "Who Invented the Gresley Gear" in our issue of December 12, reference was made to the fact that in the year 1923 or thereabout the American Locomotive Company began the large scale manufacture of three-cylinder engines, a practice which continued for some time afterwards. This has led to our receiving enquiries from readers for information respecting these locomotives. They were of varying types and dimensions and were built both for passenger and freight service on some of the railways in the United States. Among them were those of which illustrations are reproduced on page 309 of this issue and which include a very heavy 4-12-2 for the Union Pacific Railway. The engines in all cases worked on the single-expansion principle and piston valves actuated by radial gears were employed for steam distribution to the three cylinders. Prior to all this the Philadelphia & Reading Railway had built at its Reading shops some passenger engines of the 4-4-2 type having three cylinders 18½ in. in dia. by 24 in. stroke for fast service on a fairly easy section of line; these had Wotten type fireboxes for burning small anthracite coal, and 90 sq. ft. of grate area. The inside cylinder, which connected with the crank-axle of the leading coupled wheels had Joy's motion and the outside ones driving the rear pair of coupled wheels were fitted with Walschaerts gear. The Philadelphia & Reading also built a three-cylinder 4-6-0 with 19 in. by 24 in. cylinders but this would appear to have been an isolated instance of such a combination of wheels and cylinders on that system, at any rate at that period. Prejudice against the use of crank-axles is always understood to have been the major reason for the unpopularity of inside cylinder engines in the States, the large number of multi-cylinder locomotives built there having the four-cylinder articulated arrangement.

An Aftermath of the Bihta Derailment

ON another page of this issue we publish a summary of the final conclusions arrived at by the Government of India in connection with the Bihta derailment in July, 1937, as communicated to the East Indian Railway administration. Though admitting that some points are still obscure, that Government's primary finding is that the disaster was, according to the evidence now available, due to a combination of three factors, engine, track, and speed. The "XB" medium Pacifics—and other 4-6-2 engines in a lesser degree—are exceptionally sensitive to track irregularities, even though the track may appear satisfactory; and the track may, when run over by these engines, provide conditions conducive to hunting. This, the Government states, has been proved by a long series of experiments, which also go to show that hunting is often resultant from track defects arising from the condition of the underlying formation. In other words, hunting arises from pre-existing weakness or other defect in the track or formation or both, and rectification of these defects has invariably been found to cure the tendency towards hunting. There has been no established case, it seems, where hunting can be attributed merely to the engine and its speed. These conclusive experiments explain why, on some sections of line, no track distortion was ever reported, though these engines ran over them constantly at speeds of over 60 m.p.h. (except in two cases when double-heading was used). Contrary to expectation, wooden sleepers are reported to have proved less resistant to side thrust than Denham & Olphert plate sleepers, due to the ribs on the underside of the latter. If boxing were deficient this would obviously be the case, but if the complete end of a 10-in. by 5-in. wooden sleeper had an ample width of ballast beyond it and up to its top level, this might be expected to offer greater resistance than the ribs of the D. & O. plates. Probably the fact that the latter are embedded in much more consolidated ballast makes all the difference, and seems likely to be the true explanation.

An error of judgment, the Government considers, was the premature removal of two successive speed restrictions on the recently-constructed embankment near Bihta, an opinion with which few engineers will, we think, disagree in view of the approach of the monsoon; though, as it is pointed out, this removal in no way abrogated the general 45 m.p.h. speed restriction upon "XB" engines during the monsoon. The infringement of this restriction was undoubtedly the prime cause of the derailment. It was imposed with the approval of the Railway Board in 1934 as a result of numerous reports of distortions of track attributed to these engines. It would appear that this restriction was generally observed, as reports of distortions almost ceased with its imposition; the exception at Bihta, perhaps, proves the rule.

And this brings one to the question of responsibility for the enforcement of speed restrictions by higher officers of administrations. This subject is discussed at some length, and the Government states that—though it is satisfied such restrictions were fixed in the belief that they provided an adequate margin of safety to allow for their being exceeded on occasion—it considers that the only sound and safe course is to fix them as absolute, and frame the timetables so that there can be no excuse for infringement. Actually, Indian working timetables now give drivers much more information than formerly, and show the stations between which time may be made up, and its extent, in the case of late running. Maximum booked speeds have also to be approved before a timetable is published, by both the Chief Engineer and the Chief Mechanical Engineer. There remains the problem of actually enforcing the observance of restrictions. With this end in view, the Government considers that when a satisfactory type of speedometer has been secured, all engines in fast traffic should be fitted with it. This is a step in the right direction, but greater safety would be insured if speed recorders were added, and these would greatly assist the "specific department" (on the E.I.R. the Operating Department) which the Government considers must be held responsible for checking speeds and dealing suitably with drivers infringing the restrictions. Speedometers at least give drivers no excuse for errors of judgment of speed, such as was primarily the cause of this derailment. The Government agrees with the judicial report that culpable negligence cannot be proved against the

driver, as, without a speedometer, he could not regulate his speed exactly.

Nor is any blame attached to the shed staff, who correctly used the "XB," not only because it was the only engine available, but also because that action was perfectly legitimate, it being clearly understood—and freely acknowledged by the driver—that the use of this type was subject to the general 45 m.p.h. speed restriction. It is also noteworthy that the Chief Operating Superintendent had asked for and received an assurance in writing that the times had been adjusted to enable "XB's" to work this particular train. At any rate, as a further safeguard, instructions were issued by the Railway Board in 1938 to all railways, enjoining that any abnormal running of an engine must be reported by the driver to the locomotive foreman, who, in turn, must inform the Power Officer, whose permission must be obtained before the engine is put back in service. No further light is shed by this Government communication upon the question of design and purchase of locomotives, except that special attention is constantly being paid to their improvement, and research and experiment are still going on, as a final solution to the problems has not yet been found, and Pacifics still work subject to speed restrictions. Relaying with heavier material and a full allowance of sleepers are essentials for the reasonably fast running of these engines, particularly on weak formations such as black cotton soils. In India, where climatic conditions tend to produce track weaknesses on such soils, with little warning, fast speeds are only possible for engines, the maximum flange faces of which, at those speeds, are well within the limits that the track can normally bear. Few will dispute the soundness of these conclusions, many of which are based on the recommendations of the Mount Committee, as is freely acknowledged in the Government's communication.

Railway Purchase of Thomas Cook & Son Ltd.

THE four main-line railway companies have now announced that they have completed arrangements for the acquisition, through Hay's Wharf Cartage Co. Ltd., of the whole of the share capital of Thomas Cook & Son Ltd., the well known business of tourist agents which attained its centenary last year. As we recorded in our issue last week the railway companies are promoting a Bill in Parliament this session in connection with the necessary legal arrangements involved in the acquisition, and special meetings of the railway companies are being held next month to approve the Bill. The banking business conducted through Thomas Cook & Son (Bankers) Ltd. has been acquired by Grindlay & Co. Ltd. which is affiliated with the National Provincial Bank, and all arrangements to effect the transfer of that end of the business will be carried out with a minimum of inconvenience to customers. For the present it has been arranged to carry on the accounts in the same premises, where the services of Cook's staff will be at the disposal of customers as hitherto. Mr. H. E. Griffin, Deputy-Chairman & Managing Director of Thomas Cook & Son (Bankers) Ltd., is joining the board of Grindlay & Co. Ltd. The steps which have now been taken mark the fruition of plans which first became known in August last year and have had the happy effect of returning to British hands the control of Cooks which, since 1928, has been held by the Compagnie Internationale des Wagon-Lits et des Grands Express Européens. The shares of Thomas Cook & Son Ltd., which were owned by the Wagon-Lits Company, under the defence regulations have been vested in the Custodian of Enemy Property, and that holding was regarded as a holding by a private enemy company.

The original Thomas Cook was born at Melbourne in Derbyshire on November 22, 1808. He was an ardent temperance worker, and it was in connection with a large temperance meeting that he chartered a special train for those wishing to attend. This journey took place on July 5, 1841, and is often described as the first public railway excursion, but in fact there had been earlier trips at special fares, and the event, which was the beginning of the business, was more accurately described by Thomas Cook & Son Ltd. at the time of the centenary as "the first public railway excursion organised by a private individual." The party comprised 570 persons who travelled from Leicester to Loughborough and back at a 1s. each for the double journey, 24 miles in all; Thomas Cook went with them and acted as conductor. Four years later Cook ran his first tour, which included visits to North Wales, the Isle of Man, and Ireland. He compiled a small guide containing articles on places on the journey, and this was the forerunner of the attractive handbooks with which the name of Cooks has been associated so long.

The business progressed rapidly, and in 1851 Cook's Travel Agency brought 165,000 visitors to the Great Exhibition in London from all parts of the British Isles. When later Manchester and Dublin organised exhibitions Thomas Cook again took a prominent part in conveying the visitors. In 1855 the Paris Exhibition caused Cook to turn his attention to France and the Continent generally, and in the next year he inaugurated circular tours which marked the beginning of the European tourist system. At first the continental tours were confined to parties personally conducted by Cook, but later the coupon system was inaugurated, and this developed eventually into the well known "international travel ticket." During the Franco-Prussian war Cook helped to convey relief to the starving citizens of Paris at a time when the trains were under the control of the German military authorities. In the same year his only son, John Mason Cook, was appointed by the Khedive to go as agent to the Egyptian Government for passenger traffic on the Nile, and when the British Government organised its expedition to Khartoum in 1884 for the relief of General Gordon, Cook secured the contract to transport about 18,000 troops and 130,000 tons of stores and war materials up the Nile. Leicester was the headquarters of the firm until 1865 when an office was opened in Fleet Street in charge of J. M. Cook. In 1872 a large building was erected in Ludgate Circus to serve as a central office, and from then onwards branch offices were opened in leading cities and holiday centres throughout the world. In 1925 a site with a frontage to Berkeley Street was secured for new central offices which were opened in April, 1926. Three generations of the Cook family were associated with the growth of the business. On June 12, 1924, a private limited company, Thomas Cook & Son Ltd., was formed to take over a large part of the old firm's business; at the same time another limited company was formed to control the undertakings of the banking department in the name of Thomas Cook & Son (Bankers) Ltd.

Great Northern Railway (Ireland)

IN an extraordinarily good year total net income increased in 1941 by no less than £534,957 to £689,069, and after providing £118,613 for fixed charges, £192,910 for taxation reserve, and £150,000 for war damage contribution, the interest is to be paid on the 4 per cent. guaranteed stock, and on the 4 per cent. preferred stock, after which there is sufficient for the payment of a dividend of 1 per cent. on the ordinary stock, and to leave £3,082 to be carried forward. The following table gives the general financial position, as compared with that of the previous year :—

	1940	1941
	£	£
Total expenditure on capital account	10,052,929	10,052,929
Gross receipts from businesses	1,621,789	2,472,671
Revenue expenditure on ditto	1,501,908	1,821,809
Net receipts of ditto	119,881	650,862
Miscellaneous receipts (net)	34,231	38,207
Total net income	154,112	689,070
Interest, rentals, and other fixed charges	117,186	461,524
Dividends on guaranteed stock	34,771	184,280
Dividend on ordinary stock at 1 per cent.	—	40,507
Brought forward	Dr. 26,694	323
Carried forward	323	43,589

All the main sections of traffic contributed to the improvement in receipts. Passengers increased in number from 5,611,462 to 9,015,309, and in takings from £456,943 to £812,100; season tickets yielded £140,470, against only £65,775. Similarly goods tonnage rose from 1,073,552 to 1,458,661, and receipts from £602,456 to £964,315. On the other hand, there was a decline in live stock traffic, numbers falling from 858,483 to 567,103, and receipts from £110,064 to £81,073. Road transport, with £175,293 receipts and £141,692

expenses, yielded £33,601, against only £7,145 in the previous year, and similarly the hotels and catering branch, with £92,697 receipts and £78,330 expenses, produced £14,367, as compared with £2,387. On the expenditure side, way and works absorbed £265,209, against £228,800 in 1940, and rolling stock maintenance and renewal, £284,440, against £267,442. Locomotive running required £479,883, against £328,260 in the previous year, and traffic expenses, £419,288, against £341,557. Operating ratio fell to 73·11 per cent., from 93·47 per cent. in 1940, a remarkable result. The report contains a warning by the directors; they consider it in the interest of proprietors to point out that the past year's results are not necessarily a criterion of the future, in view particularly of potential liabilities in respect of taxation and war damage contributions.

Pullman Monopoly in U.S.A. Opposed

A CASE of profound importance to the American travelling public has recently been in course of hearing at Philadelphia, before a special expediting court of three judges. The action, which was first filed on July 12, 1940, and was refiled in amended form on July 22, 1941, has been brought by the Federal Government as an anti-trust suit against the Pullman organisation in the United States, naming as defendants Pullman Inc. and its wholly-owned subsidiaries, the Pullman Company, which operates the sleeping car service, and the Pullman Standard Car Manufacturing Company, which builds the cars, as well as one smaller associated undertaking. The charges made against the defendants, all of which are categorically denied, are that the Pullman companies have secured a complete and unlawful monopoly of the business of operating inter-state sleeping car services over the U.S.A. railroads; that the rates charged both to the railroads and to the travelling public for sleeping car service have been non-competitive; that an absolute monopoly has been secured over the business of manufacturing sleeping cars and that as a result the railroads have been forced to pay non-competitive prices for their cars; and that by coercion and restraint defendants have attempted to stifle the competition of other concerns in the manufacture, lease, and operation of modern lightweight coaches, sleeping cars, and streamline trains. In this last-named direction the chief competitor has been the Budd Manufacturing Company, which was responsible for building the first lightweight diesel streamliner—the original Burlington Zephyr—in 1933, and has since probably done more than any other American concern to develop lightweight coaches, and thereby both to popularise the high speed streamline services and to ease the burden imposed on American steam locomotives by the enormously heavy all-steel coaching stock previously standard.

The case arises out of the commanding position which has been established by the Pullman organisation in the North American continent. In some respects this position is analogous to that occupied in normal times in Europe by the International Sleeping Car Company, and is the product of the same factors—the long through journeys of sleeping cars over the lines of a number of different railways, so that single independent ownership of a " pool " of sleeping cars has been a more attractive proposition to many railways than individual ownership and staffing of cars which must spend much of their time remote from their own systems. Such outside ownership has helped to keep down the capital expenditure of the railways on luxury stock, though in America numbers of the cars operated by the larger railways on their own systems alone have been purchased by these railways, and under agreement with the Pullman Company they are staffed by the latter. As with the Wagons-Lits in Europe, also, the Pullman organisation in the United States has helped to establish in the traveller's mind a uniform standard of comfort and service, and the average American would probably be prepared to concede that in this realm Pullman has done its work well. Unlike Europe, where the Sleeping Car Company has had to face the competition of the powerful Mitropa organisation in Germany, the American Pullman Company, since the days, long ago, in which it succeded in extinguishing the activities of Colonel Mann and the Wagner Palace Cars, has until recently had no effective competition. Still more, through all its long history Pullman has built its own cars, and on such a scale that the activities of a large suburb of Chicago, named Pullman, are concentrated almost entirely on the business of building luxury stock, these activities being now controlled by the subsidiary Pullman Standard Car Manufacturing Company.

It is this combination of building and operating that places Pullman Inc. in so strong a position. The difficulty in the way of a coach-building undertaking such as Budd is chiefly that of obtaining the consent of the Pullman Car Company to staff cars which have not been built by its own Pullman Standard subsidiary. It was natural that Budd, having established its reputation so successfully in the construction of streamline trains for day services, should desire to turn its attention to sleeping car construction also, but in his testimony Mr. Edward G. Budd, president of the company that bears his name, declared that the door was so securely closed by the Pullman Company that the market for outside sleeping car construction was " hopeless." He cited orders that had actually been placed with his company for sleeping cars, but had subsequently been changed to cars for the use of " coach " passengers (the inferior class of travel in the United States, corresponding to British third class), and in the interim the railways concerned had entered into new sleeping car contracts with the Pullman organisation. The Federal Government subpœnaed over 50 witnesses, including many of high rank in railway and manufacturing circles, but many of these were relieved of testifying by the submission of documents, and only 16 were actually heard. On the whole, the testimony has been by no means adverse to Pullman, except for the suggestion that Pullman designers have not tackled with sufficient vigour the problem of lightweight stock. The smaller railways for the most part do not regard the running of their own cars as a practical proposition, and welcome the Pullman arrangements; as to the larger, several influential witnesses testified that they regarded the Pullman service as satisfactory, but Mr. W. A. Worthington, Vice-President of the Southern Pacific, added that if at any time the Pullman Company should offer an unsatisfactory contract or give inferior service, the S.P. would not hesitate, " at whatever the cost," to operate its own cars, and would probably try " to get some other roads into the scheme with us." The Pullman reply has yet to be given. Apart entirely from the ruling that may be given in this case, the greatest threat to the Pullman monopoly may well prove to be, eventually, the perfection of the lightweight reclining chair cars for coach passengers that are being built in such numbers, and in these days also are being assembled into special high-speed trains for coach passengers only. These cars have the double advantage of lightening the demands on the passenger's pocket, and also lightening, in a very considerable degree compared with sleeping car stock, the loads imposed on the locomotives, and their popularity is going ahead by leaps and bounds.

Problems of the Mediterranean-Niger Railway

AMONG the most extensive new railway projects at present under construction is that called the Mediterranean-Niger Railway, the main portion of the even-more-extensive Trans-Saharan Railway. The full scope of the Trans-Saharan Railway was outlined in THE RAILWAY GAZETTE of November 28 last (page 559) and the accompanying sketch map then showed the approximate course of the proposed lines. The scheme at present being undertaken is now known in France officially as the Chemin de fer Méditerranée-Niger (M-N) and was authorised by a Vichy Law of March 22, 1941, signed by Marshal Pétain as the Chief of the French State. Such proposals as are now envisaged, however, are much older, and the extension southward from Bou Arfa to Colomb Béchar (formally opened on December 8 last) was actually put in hand in January, 1940, or more than a year before the present Law was signed, and of course well before the collapse of France. Under the present plan, the existing standard-gauge line from Oudja to Bou Arfa, owned by the Moroccan Eastern Railways (Compagnie des Chemins de fer du Maroc Oriental) and built in 1928-1932, is being incorporated and reconstructed as the northern section of the

M.-N. In addition, also the 22-km. (13½-mile) extension of the Algerian metre-gauge line from Oran to Colomb Béchar, namely, the Colomb Béchar to Kenadza branch line, has been absorbed in the new system. The importance of the Kenadza coal mines was pointed out in the notes at page 140 of our January 23 issue.

According to official Vichy announcements, the M.-N.R. is to have five or six bridges, each about 165 ft. long, but, with a view to expediting the completion of the line, temporary low dams may be built in lieu of the bridges across the wadis, which are generally dry. Metal or reinforced-concrete tubes would be laid through the dams to enable any water to flow underneath them. Alternatively, it is thought that small temporary bridges may be assembled locally from pre-cast concrete segments. Earthworks should not present any great difficulty over much of the route, and will be dispensed with almost entirely in the central section of the main line. A more difficult problem will be the supply of the ballast for the line. Over long stretches of the route the soil is hard and flat and covered with gravel and sand containing stones yielding a good type of ballast, but on other sections it is stated that the permanent way will be laid direct on the soil. A heavy type of rail, weighing 101 lb. a metre, will be used. Timber sleepers will be adopted as far south as the northern limit of the Sudan region, but beyond there either metal or concrete sleepers will be used because of the destructive action of tropical insects on timber. Special arrangements will be necessary to counteract the effect of rail expansion and contraction due to wide temperature variations; in the hottest regions the daytime figure rises as high as 132 deg. F. (55 deg. C.), but the nights are cold. Sand storms occur about 15 to 20 times a year, with heavy sands flying at low levels and forming sand drifts similar to snow drifts, though less quickly. The experience of the Algerian State Railways on the narrow-gauge Biskra to Touggourt line is that the sand is not deposited on the rails if the permanent way is on a somewhat high embankment, above the level of the low line of flight of heavy sands; on the other hand, the sand tends to collect in cuttings if these are across the direction of the prevailing winds.

French experience with desert construction is that sand storms and abrupt and wide temperature variations have a depressing influence on personnel. With this in mind special care was paid in the preparation of the scheme to the accommodation and welfare of the staff. Service buildings and dwelling houses are to have thick stone walls ensuring a bearable inside temperature, and appropriate ventilation or even air-conditioning will be provided. In the hottest regions, underground dwellings are envisaged for use during the periods of the most severe heat. Diesel-electric locomotives are envisaged for the whole M.-N. system, as they will be capable of covering the whole distance between the Mediterranean and the Niger without encountering refuelling difficulties. At present, goods trains over the existing section from Oudja to Bou Arfa and Colomb Béchar are normally worked by steam locomotives using the Kenadza hard coal, while passenger services are operated with diesel railcars. The altitude of Bou Arfa station is 4,583 ft., whereas that at Oudja station is only 1,804 ft. The administrative organisation and financial status of the M.-N.R. were laid down in a Vichy Law passed on July 18, 1941. Its first article provides that the construction and working of the whole system is reserved to the State. An autonomous administration is to be set up under the authority of the Minister for Communications and charged with the task of financing the enterprise; loans may be issued direct by that administration, or, on its behalf, by the Minister of National Economy & Finance, within the limits to be fixed annually by the finance law. M.-N. loans will be guaranteed by the State. In the meantime, the Minister is authorised to grant advances in order to ensure the speedy prosecution of the work. The present mixed nature of the undertaking—as a French commercial enterprise, and as a German strategic railway—was outlined at page 140 of our January 23 issue.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

S.R. Blast-Pipe Experiments

London, N.W.

February 14

To the Editor of The Railway Gazette

Sir,—I have read the article on blast pipes, which appeared in your issue of January 9, and am forced to the opinion that the results are by no means convincing. Admitting that the whole question of draught due to blast is largely empirical, yet at the same time there are certain fundamental laws which should be observed in order to bring about good steaming qualities. A number of the tests made were obviously nothing more or less than " chuck it and chance it " attempts, and show a lack of the real conception of the goal to be obtained. These experiments would appear to have been found necessary in order to increase the evaporative capacity of the boiler, or to put it into other words, reduce the coal consumption and the back pressure; that is the goal we are setting out to obtain.

Taking the first item, increasing the evaporative capacity of the boiler; this may be obtained by firstly making quite sure that the degree of draught passing through the tubes is evenly distributed, in fact if anything slightly more through the bottom tubes than the top. If this state of affairs is found to be correct, then it is doubtful whether there can be any further advance except in one direction, and that is by increasing the velocity of the gases through the tubes, in other words, increasing the draught. Such increase of draught naturally has its limitations, and if carried to excess would no doubt bring about an increased evaporative capacity, but at an appreciable increase in coal consumption, an all-important question for any railway and more especially for the Southern Railway, where the price of coal is highest, due to the geographical position of the railway.

We now come to the question of back pressure in the cylinders. Admitting that the lower this can be obtained the higher the efficiency of the engine is likely to be, yet at the same time provided the port areas have been carefully designed, a blast pipe orifice of reasonable size will not materially increase the back pressure, and it is doubtful if an indicator diagram would show any serious change, or sufficient to translate it into increased coal consumption, or decreased engine efficiency. It is an accepted fact that there is an advantage to be obtained by employing as large a blast pipe orifice as possible, compatible with satisfactory steaming conditions. It would rather appear from the experiments made that an increased draught was aimed at.

Increased draught can be obtained in various ways, two of which may be worth mentioning. Firstly, increasing the velocity of the blast, brought about by the reduction of the blast pipe orifice, a method to be avoided if possible as likely to affect the question of back pressure. Care also will have to be taken, if a reduction in the bast pipe is made, that the steam cone fills the chimney, touching the chimney about 6 in. from the outlet, otherwise the draught and steaming qualities will be worse than before. Secondly, increasing the size of the chimney, the orifice of the blast pipe being increased in size and the velocity of the exhaust being reduced, and on this account a reduction of back pressure expected. The effect of a larger chimney would bring about a greater volume of the gases of combustion being extracted each beat, thus neutralising the reduced velocity.

The idea of five small jets as compared to a solid unbroken steam cone from a single jet does not appeal to one as so efficient, and the development of a large chimney combined with a large blast pipe orifice should give better results. It might be found necessary in order to obtain the largest diameter of blast pipe to fit centrally an inverted cone in the blast pipe, thus forming an annular steam jet, as it must be remembered the effective surface extracting the gases of combustion is the outside surface of the steam jet, not the core.

It cannot be emphasised too strongly that the position of the chimney or petticoat pipe, if fitted, is of the greatest importance. The raising or lowering of the blast pipe in relation to the chimney, also the height of the blast pipe in relation to the centre of the tubes can affect the steaming qualities from entirely satisfactory to very unsatisfactory. The shape of the blast pipe is so important that a study of steam nozzles as used in turbines, etc. would be time well expended. This will account for the very unsatisfactory experiments 1 to 3 which were obviously not worth trying .

Yours faithfully,

A LOCOMOTIVE ENGINEER

THE SCRAP HEAP

Checking rail freight movements the U.S. Chamber of Commerce found that the biggest item of export from Washington is waste paper, baled and en route to paper mills for reclamation.—*From "Newsweek."*

* * *

The first bridge across the Delaware River was built at Trenton in 1806 for the passage of wagons. It was later reinforced and used as a railway bridge by the Camden & Amboy line, thus becoming the first inter-State railway bridge in the U.S.A. In 1875 a double-track iron bridge replaced the wooden structure.

* * *

The monumental Wilson station at Prague, well known to every tourist who visited the Czechoslovak capital in more peaceful years, which is now called the Central Station (*Hauptbahnhof*), no longer has the monument to Wilson which stood in a green in front of the main entrance. It has been demolished, and a wooden tablet shows the place where it once stood.

* * *

"TELETYPESETTING"

"The management of the *London Times* has utilised the telephone in a unique way. Telephone wires have been laid in the underground railway tunnel between the composing room in Printing House Square and the Parliamentary reporters' gallery in the House of Commons. A copy reader placed at the telephone reads the stenographic 'turns' from the note book as fast as it is possible for the compositors to take them on their typesetting machines in *The Times* building, a mile and a half away."—*From the "Scientific American" of January*, 1892.

* * *

LONG WORDS

A rival to the celebrated Welsh tongue-twister Llanfair P.G., etc., is cited from Sweden. It is a word of 93 letters and can be pronounced easily by a Swede in one breath. Here it is: Sparvagsaktiebolagsskensmutsskjutarefackforeningspersonalbekladnadsmagasinsforradsforvaltaren. It means "The manager of the depot for the supply of uniforms to the personnel of the track cleaners' union of the street railway company."—*From "The Meccano Magazine."*

* * *

THE NUMBING HAND

"A dead and numbing hand is stretched over all our national life. It weakens, often paralyses, our noblest attempts. It is felt in our private and public life, in the fighting services, and in the conduct of business. This is the hand of the Civil Service.

"The men who feed this machine are often idealists. They often enter the service with high aspirations allied to great abilities. Very few escape for many years the deadening spirit of the machine.

"In peace the system works. Dreadful delays in a reply to a letter and weeks, months, wasted in reaching a decision are minor irritations. The system works. But in war, with its swollen staffs and its increased authority, the system kills. It makes devastating inroads on man-power. It strangles initiative with red tape. It imposes indecision and delay."—*From "The Sunday Express."*

* * *

A STOCKHOLDER'S RESOLUTION.

At the annual meeting of the London & North Eastern Railway Company on March 6, a stockholder, Major W. H. Gardiner, will move the following resolution: "That each individual holder of either the preferred ordinary or deferred ordinary stock in the company be allowed free travel over his own railway to the extent of eight miles of first class travel or twelve miles of third class travel yearly for each one pound nominal of either class of stock which he holds, provided that he has held this stock for a period of at least one year previously, and that each holder of first and second preference stock be allowed a similar privilege at the same rate to the extent that he may have received interest on his capital at a lesser rate than that to which he is entitled."

* * *

WASHING OFF THE LINE

Because of the soap shortage, tablets soap will no longer be provided in trains.

[Reproduced by permission of the proprietors of "Punch"

"Bother—it's a smoker!"

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CEYLON

Increased Passenger Traffic

Petrol rationing has brought about a sudden increase in railway traffic between suburban districts and the city of Colombo, which resulted in an increase in season and zone ticket sales, and is necessitating special measures by the railway administration to cope with the additional travellers. Extra third class coaches are attached to all trains on the Coast line, and a special train is kept in readiness at the Maradana station in Colombo to be rushed to any point at which the traffic cannot be cleared by the ordinary trains. On the narrow-gauge Kelani valley line, also, the trains have been strengthened to the maximum formations that can be handled by the locomotives. These are temporary measures, until the full effect of the petrol rationing has been measured, and the train services adjusted to meet the changed conditions. A difficulty in the way of increased service is shortage of rolling stock due to war conditions.

Colombo Water Supply

In connection with the Colombo water difficulty, mentioned in our February 20 issue, it is now proposed that instead of drawing on the municipal water supply, the engine shed and carriage sidings at Dematogada should have their own independent supply for locomotive boiler water and carriage washing purposes. This would be pumped by a pipeline ¼-mile long, and would make considerable savings possible on the present purchases of water from the Colombo municipality, especially as all the other engine sheds in the Colombo area might ultimately be supplied from the same source. Obtaining the water from this canal is likely to be cheaper and more reliable than sinking wells for the purpose.

UNITED STATES

Converting Pullmans to Coaches

There is a perceptible trend in present-day American passenger car construction away from the parlour or superior class vehicles towards the "coach," which corresponds to British third class; it is doubtless the product of the luxurious reclining chair cars for coach passengers which are now being turned out in such large numbers. The Missouri Pacific RR. has been authorised by the district court to buy 17 Pullman cars from the Pullman Company for conversion into coaches.

Analysing Accident Causes

Detailed reports by the Interstate Commerce Commission on 57 railway accidents in the first ten months of 1941 show that 30 of them concerned passenger trains, and involved 66 deaths (though only 5 of these were fare-paying passengers), and 840 cases of injury, of which 675 were passengers. Of the accidents, 24 were derailments, 13 were head-on and 12 rear-end collisions, 6 were converging collisions, and 2 were collisions with highway vehicles at grade crossings. A total of 43 of the accidents is attributed to the negligence of employees, including 10 through failure to obey "meet" orders on single track, 9 through failure to obey signal indications, and 7 through failure to flag properly; excessive speed, including improperly controlled speed in yard limits, accounted for 11 accidents. Track defects caused 6 derailments, two each by broken rails or irregularity in track surface, one by kinked track and one by a spring switch failure; only three accidents are attributed to mechanical failures, one to faulty brakes, and one to a broken wheel. Nine accidents were from causes beyond railway control, four of these being due to landslides or washouts, two to obstructions on track, and one to sabotage.

Increasing Pullman Charges

An application has been filed by the Pullman Company with the Interstate Commerce Commission for authority to increase all the rates in Pullman sleeping and parlour cars by 10 per cent., in line with the applications of the railways and the Railway Express Agency for authorisation of rate increases to meet the cost of higher wages. In 1941 the wages paid by the Pullman Company amounted to $33,980,000, and the total is expected to rise by at least $6,000,000 in 1942; higher taxes will account for another $352,200.

New C. & N.W. Streamline Stock

The Chicago & North Western RR. has been taking delivery of five units of new streamline passenger stock, of six cars each, similar to that used on the 400 streamliner between Chicago, St. Paul, and Minneapolis, and intended to provide service in areas of Wisconsin and Minnesota, off the Twin Cities' main line. The first of these trains, with steam power, went into operation on January 5 between Wyeville, Wisconsin, and Rochester and Mankato, Minnesota. It makes the round journey of 432 miles daily, connects at Wyeville with The 400, and is provided with a combination baggage-taproom-lunch counter car, coaches, and a parlour car.

Derailment on the Lehigh Valley RR.

A serious accident occurred on the Lehigh Valley RR., in the early morning of January 4, when Train No. 4, a sleeping car express from Buffalo to New York, ran into a motor car, which had stalled on a level crossing near Ransom, Pennsylvania. Of the train of 14 coaches, only the rear coach kept the rails; the remaining 13 and the locomotive were derailed. One passenger was killed and 13 were injured. The motor car had become immovable in a blizzard, and the occupants were seeking some means of warning the railway authorities when the collision occurred. The locomotive and first three cars maintained their general direction, but the fourth car swung round at right-angles and severely damaged the fifth.

FRANCE

Financial Results of National Railways

Recent figures published by the Société Nationale des Chemins de Fer show an improvement of the financial position. The working deficit amounted to two milliard francs in 1938, and a small surplus of fr. 300,000,000 was obtained in 1939; a surplus of fr. 2,200,000,000 is now returned for 1940. This improvement is said to be the outcome of commercial and technical reorganisation and rationalisation of the services. As a favourable omen it is pointed out that the S.N.C.F. did not ask for new credits from the State during 1940.

The present electrification of the system allows an annual saving of 10 per cent. as compared with the 8 million tons of coal previously consumed; it is expected that the annual coal consumption will be reduced to 2,300,000 tons when the electrification scheme is completed.

Paris Metro Passengers and Results

The Paris Metro records a substantial increase in the number of passengers conveyed during the year 1941; the total is 1,024,000,000, as against 650,050,581 in 1940, an increase of some 57 per cent. The average number of passengers on the Metro system is now calculated at about 3,450,000 a day, as against 2,350,000 a day in the winter of 1938-39. The number of passengers now carried far exceeds the best results of the pre-war years (649,550,851 passengers in 1939 and 760,656,981 in 1938).

Working receipts for 1941 increased to fr. 1,207,000,000 as against fr. 736,451,351 in 1940, an increase of about 64 per cent. The month of December, 1941, exceeded all previous monthly records for working receipts; in that month they were fr. 111,000,000. The substantial increase in the number of passengers carried, and in the gross receipts is ascribed to the virtual traffic monopoly which the Metro enjoys since the drastic curtailment of the Paris bus service, and all kinds of private motor traffic, due to the shortage of motor fuel, lubricants, and tyres. On the other hand, working expenditure has increased at an even faster rate.

Notwithstanding the heavy increase of traffic, consumption of current in 1941 was substantially reduced. In that year it was 317,600,000 kWh, which compares with 347,600,000 kWh in 1938. This was due to better adaptation of the train frequency to the needs of traffic periods, and also to a reduction of the hours of service and to the closing down of a number of stations. In our issue of January 30 we recorded that 25 stations had been closed down, and this number has been increased to 62. Consumption of current for each passenger averages 0·23 kWh, as compared with 0·43 kWh in 1938.

SWEDEN

Västerås Railway Negotiations

Negotiations for the incorporation of the Stockholm-Västerås-Bergslagen-Railway into the Swedish State Railways have been resumed recently. The Västerås railway company owns an extensive standard-gauge system based on Stockholm Central Station and extending through Central Sweden to the neighbourhood of the Norwegian frontier. The system consists of the following lines:

	km.
Stockholm-Enköping-Tillberga-Västerås-Kolbäck-Koping	146
Tillberga-Ramnas-Angelsberg-Västanfors-Ludvika-Vansbro	197
Enköping-Heby-Runhällen	46
Tillberga-Sala	38
Angelsberg-Kärrgruvan	18
Kolbäck-Ramnäs	27
	464

Earnings of State Railways

For the period January-November, 1941, the Swedish State Railways report earnings of 393·6 million kronor against 322·4 million kronor for the same period in 1940; expenditure totalled 275·5 million kronor against 229·1 million. The surplus for the period was thus 118·1 million kronor compared with 93·3 million, and the net profit amounted to 83·1 million kronor compared with 61·7 million. For the month of November the surplus was 11·9 million kronor against 9·8 million for the same month in 1940.

THE GOVERNMENT OF INDIA'S CONCLUSIONS ON THE BIHTA DERAILMENT

In the light of judicial and technical inquiries, and of subsequent information obtained, the Government has informed the East Indian Railway of its final conclusions which are summarised below

THE Railway Department of the Government of India has now informed the General Manager of the East Indian Railway of the final conclusions at which it has arrived concerning the serious derailment at Bihta on July 17, 1937. To reach these conclusions, the Government took into account (*a*) the evidence taken in the judicial inquiry, (*b*) Sir John Thom's judicial inquiry report, (*c*) extensive research into the relations between track and engine performance, (*d*) the report of the Pacific Locomotive Committee, and (*e*) further evidence of various kinds. Much of this evidence was not available when the inquiry was held.

Hunting Proved to be Due to Weak Track

The evidence now available still leaves some points obscure, but it points strongly to the conclusion that the accident resulted from a combination of three factors, engine, track, and speed. The engine belonged to a class which the Mount Committee described as " border line cases." As it observed, " because of the border line nature of the engine as designed, they were exceptionally sensitive to track irregularities, although track might appear satisfactory when examined in the usual way, it may, when the load is applied, provide differences in gauge and level sufficient to initiate hunting." This has been established by a long series of experiments; it has been found that hunting owes its origin to track defects often arising from the underlying formation, if an engine in running a number of times over track in which defects exist develops a hunting motion, it does so at the same spots each time. Attention to the track at the appropriate spots invariably cures the hunting tendency and there has been no established case where the hunting can be attributed merely to the engine and its speed. This is the explanation of why in some areas these " XB " engines had given consistently satisfactory running, while in others they had given almost continuous trouble. On the Madras & Southern Mahratta Railway, for example, except in one case where two engines were coupled, they had not produced a single distortion, although they had been constantly run on one important section at speeds of over 60 m.p.h.

Local Conditions Conducive to Hunting

It may be remembered that at the site of the derailment, an 868 ft. length of wooden sleepers had to be substituted for the otherwise continuous Denham & Olphert's plate sleepers, to cover—and with about 100 ft. extra at each end—a newly-constructed submerged flood opening, the wooden sleepers with their greater bearing surface giving better vertical resistance to loading on the new earthwork. During the inquiry it was accepted that new wooden sleepers give less lateral resistance to side thrust than D. & O. plates with their ribs on the underside; but prior to the accident this fact had not been appreciated by either the railway administration or the Senior Government Inspector, the latter, in fact, holding the opposite view. There was, therefore, a recognised element of weakness in the track at the point of first distortion of the track and of derailment.

The contribution made by the engine to the accident has already been indicated. The evidence available at the time of the accident pointed to the conclusion that the use of this particular engine involved a greater degree of risk than the use of an average engine of its type. In the light of further investigation, this is questionable. But all the engines of this class were hard on the track, and although other types of engines are liable to hunt, it is probable that if an engine of another type had come at this moment on that piece of track, the same disastrous results would not have followed.

The speed of the engine contributed directly to the accident. Sir John Thom observed, with reference to the evidence before him: " There is nothing in the evidence to justify the conclusion that the track at the site of the accident would have been distorted by an engine running steadily, or by an ' XB ' engine running at 45 m.p.h. or under." Subsequent investigations have given no ground for modifying this conclusion, and it can be regarded as reasonably certain that if the driver had observed the speed restriction in force, the disaster would have been avoided.

In endeavouring to assign responsibility for the derailment, the Government agrees with the judicial inquiry report that, in the matter of speed, the driver must be given the benefit of the doubt, but, the Government continues, there is another question involved, namely, the extent to which acts or omissions of the higher officials and of the administration may have contributed to excessive speed. In two respects railway practice was defective. In the first place, speed restrictions were not regarded in the same light as maximum permissible speeds which, fixing absolute limits, would require to be observed in all circumstances. Speed restrictions such as those of the type imposed in this case were regarded as more approximate indications, and it was known and recognised that they might to some extent be exceeded on occasions. The Government is, however, satisfied that this fact was taken into consideration in fixing speed restrictions and that in the present case the speed restriction was fixed in the belief that it provided an adequate margin of safety. But it considers that the only sound and safe course is to fix all restrictions of speed at figures which are regarded as absolute, and draw up the timetables accordingly so that any infringement of the restricted speeds will be without excuse.

Speed Restrictions and Punctuality

In the second place, not merely on the E.I.R. but on other railways in India the same attention was not paid to checking drivers for exceeding speed restrictions as was paid to ensuring the punctuality of trains. A careful watch is kept by the Operating Department on the observance of scheduled times, but there was no department specifically charged with the duty of seeing that speed limits were not exceeded. On the E.I.R. the Divisional Superintendent, Dinapore, informed the Chief Operating Superintendent in October, 1936, that he had personally checked the timings of trains drawn by " XB " engines, and in December, 1936, the Chief Engineer asked for a check of speeds with a view presumably to ensuring that his track was not subjected to any undue strain, but the action taken appears to have been special rather than normal.

Drivers were well aware that the observance of speed restrictions overrode all other considerations, and in the Bihta case the driver was explicit in admitting that he understood this fact. He acknowledged that he knew he would be liable to no blame if he arrived late through observing the restriction. At the same time, the Government of India feels that the disproportionate attention given to checking punctuality and to checking excessive speeds must have had an influence on drivers of trains. It is considered important that a specific department—on the E.I.R., the Operating Department—must be instrumental in insuring that the divisions carry out the duties of checking speeds and deal suitably with drivers who are found to have infringed speed restrictions. At the same time, the Government could not hold any officer personally culpable for the two defects which it noted. Both were common and established railway practice, and the second, at least, was practically universal in India.

It is also considered that it would be unjust, merely because

an accident had occurred, to hold any officer who happened to be in a particular post at the time culpably negligent for failing to detect a weakness which had occurred to none of his predecessors.

Timetable Allowance for Speed Restrictions

The inquiry into the accident led to further examination of the system of preparing timetables. A committee of Senior Government Inspectors and Chief Operating Officers was set up early in March, 1938, to consider and report on certain features of timetable preparation. The recommendations of that committee generally were accepted by the Railway Board, and orders are now in operation, which provide an adequate margin of speed in all train running times, to ensure that drivers shall keep well within the maximum permissible speed.

An addition has been made to working timetables which gives to drivers a more detailed analysis of their train timings than formerly, and shows not only the stations between which time may be made up but also the actual amount. These instructions were transmitted to Senior Government Inspectors to enable them to take such action as was necessary to ensure that railways within their circles followed the principles formulated. In accordance with a recommendation of the Mount Committee, instructions have also been issued that the Operating Department, when drawing up the working timetable, should obtain the concurrence of both the Chief Engineer and the Chief Mechanical Engineer to the maximum booked speeds.

The engine in the present case was not fitted with a speedometer. It has never been the general practice in India to fit speedometers to engines, and even on the British railways, on which speeds 50 per cent. greater than those admissible in India are attained, a beginning has only now been made in this direction. While a speedometer would have been of assistance to the driver, it is by no means certain that it would have prevented the accident. A number of speedometers have been ordered with a view to ascertaining the most suitable types, and the Government of India considers that when a satisfactory type has been secured, their fitting to all locomotives which are liable to be driven at fast speeds should be made general.

No Blame Attached to Shed Staff

As regards the contribution made by the engine the Government cannot regard those who sent it out on the night in question as negligent. It belonged to a type which, as then constructed, could not safely be used at high speeds, unless the track was strong and very well maintained. But there is in the view of the Government nothing blameworthy in attaching any engine to any train if the need arises, so long as (*a*) it is clearly understood that any restriction imposed on its speed is to be paramount over all other considerations and (*b*) the provisions regarding speed are adequate. The latter question has already been dealt with, and, in the present case, it has been shown that the driver was under no misapprehension regarding the former. The plain unvarnished truth is that engine "XB" 1916 was sent out because it was the only engine available. Actually the Chief Operating Superintendent had, in connection with the April timetable of the previous year, asked for and received an assurance in writing that the times had been adjusted to enable "XB" engines to work this train.

Although the Government does not regard the power position at Jhajha as having a direct connection with the accident, the inquiry has brought to light the fact that the power position was definitely unsatisfactory. This was due in part to the mechanical trouble which these engines had given, and in part to defects of organisation, which have since been rectified. The inquiry also directed attention to the desirability of better co-ordination of information regarding the defective running of engines, and early in 1938 instructions were issued to all railways by the Railway Board with this in view. These enjoin that any abnormal running of an engine must be reported by the driver to the locomotive foreman. That officer is required to refer the matter to the Power Officer with a view to obtaining his permission before putting the engine back in service. These instructions relate to engines of all types.

The views of the Government regarding the design and purchase of locomotives were expressed in debates on the Mount Report in the Legislative Assembly, and are not repeated here. It is added, however, that although virtually no new engines were ordered after 1930, an immense amount of thought and care was devoted in subsequent years to their improvement. This research and experiment is still being carried on, with the assistance of the valuable light thrown on the subject by the Mount Committee. The problems have not yet found a final solution, and the engines still work subject to speed restrictions to ensure their safe running.

Returning to the subject of track, the Government calls attention to the fact that the report of the driver of a previous train to the Deputy Controller at Dinapore—about a serious jerk he had experienced—was not acted upon, and no caution order was issued, though there was ample time for this to have been done. It will be remembered that the judicial report states that the Deputy Controller was guilty of an error of judgment and of gross dereliction of duty. The issue of a caution order might have prevented the derailment. This official was prosecuted, but was acquitted by the Patna High Court. He was, however, degraded for negligence.

Condition of Road Contributed to Derailment

In connection with the opening of the unconsolidated bank to unrestricted speeds, the facts are as follow. The bank had been reconstructed to provide a submerged flood opening less than four months before the accident. A restriction of 10 m.p.h. was imposed for about a fortnight, this was then raised to 20 m.p.h., and four days later that restriction was removed. At each stage a report was made to the Senior Government Inspector, who also received telegraphic reports. The Government considers that there was an error of judgment here, but it cannot hold either the local engineers, who furnished the safety certificates, or the Senior Government Inspector, who accepted them, culpably negligent in respect of an error of judgment of this kind. It may be added that while the retention of a speed restriction of 35 m.p.h. (the limit suggested by the Senior Government Inspector after the accident) might have prevented the accident, there is no definite evidence that the state of the bank contributed to the accident. Moreover, the opening of the bank to unrestricted speeds did not have the effect of abrogating the monsoon restriction on "XB" engines. It was to the infringement of that restriction that the accident is primarily traceable.

Track Distortion Reports

The Government next refers to the various reports and action taken between 1931 and 1934 regarding track distortions attributed to "XB" engines, culminating in the general 45 m.p.h. speed restriction for this class during the monsoon months, as accepted by the Railway Board. The track on the section where most of the distortions occurred—but not the one in which Bihta is situated—was relaid with much heavier rails, and this effected a practically complete cure of the trouble. Thereafter, reports of distortions almost ceased, though later unreported distortions did occur as has been established since the accident; the Government does not, however, believe that their reporting would have effected the Bihta derailment. On the other hand, there was some failure to grasp the importance of distortions in their bearing on safety. Minor displacements of track are fairly frequent on certain formations, and do not involve danger provided that proper precautions are taken; but in the present case the distortions were in effect a danger signal which was not fully recognised.

Orders were issued in 1938 that railway administrations should submit periodical returns to the Railway Board of any abnormal occurrences to track attributable to the oscillation of locomotives. These returns have been regularly received, and, up to the date of the last return, there have been on all railways only seven reports of minor disturbances to track. Of these, five were definitely unconnected with Pacific locomotives and the remaining two were probably

connected with engines of this class. The Government of India feels that, in the light of the inquiry and the subsequent research, it is essential, particularly in dealing with engines setting up high flange forces, to focus all the available evidence regarding the effect of locomotives on the track and to ensure that, by its systematic collection and analysis, the risk of derailments is reduced to a minimum.

Concluding Remarks

To sum up, the main lesson to be drawn from the accident is clear. The prevention of similar occurrences must depend on attention to three factors, track, speed, and engine, not in isolation but in close co-ordination. Attention to the track and its maintenance in a state which is fully equal to the strain likely to be put on it has always been recognised as a matter of great importance, but the accident and the investigations to which it led have established more clearly than before its fundamental relation to safety. Where the underlying formation is good and the track strong, even "XB" engines have run at fast speeds for years without a distortion; where the formation is unstable or the track light, special precautions will always be necessary. The replacement of lighter by heavier track and a full allowance of sleepers, as recommended by the Mount Committee, are essential for reasonably fast running of these engines, particularly on weak formations, such as black cotton soil.

At the same time speed restrictions, wherever these are necessary must be maintained at levels which allow an ample margin of safety and on any weak spots or in any special circumstances, special care is essential. The stringent enforcement of any restrictions that may be imposed is equally vital and it should be brought home to all concerned in the running of trains that no consideration of punctual running can justify any infringement of the prescribed speed limit.

Finally the improvement of the engine will demand continued attention. As the Mount Committee observed "Neither track nor engine can be perfect but the better the one the less perfect the other can be by a corresponding amount." In India, where climatic conditions tend to produce, especially on certain formations, track weaknesses with little warning, the attainment of reasonably fast speeds is only possible for engines whose maximum flange forces, at those speeds, are well within the limits that the track can normally bear. The improvement of the locomotives as vehicles is a matter mainly concerning the Railway Board in its Standardisation Office; but administrations can make a valuable contribution by ensuring that locomotives are maintained at high standard.

Portable Instantaneous Generator Unit

INSTANTANEOUS steam raising plant, besides filling its peacetime role of providing steam heat for diesel railcars and passenger aircraft, is now to be used for the decontamination of war gases from machinery, road transport vehicles, and aircraft. An interesting example, suitable for this class of work, is the Vapor-Clarkson generator, which is an automatic oil-fired steam generator of the continuous coil water-tube type. Its advantage for such work is the extreme compactness and portability of the unit. The stationary model occupies no more than 3 ft. by 2 ft., excluding motor, and the portable model, complete with fuel and water tanks, is mounted on a trailer no more bulky than the light trailer pump used for fire-fighting. This Vapor-Clarkson generator supplies both dry or superheated steam, and also can produce high-temperature liquid sprays, at either high or low pressures.

The standard unit has a capacity automatically variable from 100 to 300 lb. of steam an hour of dry or superheated steam at pressure up to 200 lb. per sq. in.; superheat is adjustable up to 500°/600° F. As the unit has a heat release of over a million B.T.U's per cubic foot of combustion space, an unusual amount of steam is delivered in relation to size. The generators are constructed with a patented staggered coil assembly, which can be withdrawn from the unit by a single operation, either for cleaning or for replacement of a new coil unit. The whole of the conversion from water to steam is effected within the compass of this coil, so treated feedwater is essential. The coil is fully compensated for expansion and is designed to split the combustion gases into narrow layers. As these gases flow in the opposite direction from the flow of water in the coils, high thermal efficiency results. The coil is made from open hearth steel tube, the body and fire components from close-grained cast iron, and certain auxiliaries from bronze. Tecalemit filters are used in the oil feed and a Waynes Viking fuel pump controls the supply of the fuel. This pump, the Duplex feedwater pump, the ignition magneto, and the blower fan for combustion air, are driven by one unit, which may be either an electric motor or internal-combustion engine. The driving assembly is thus somewhat complicated, but careful design has made it very compact. The ignition shaft, running at 880 r.p.m. normal, the fan and oil pump shaft running at 1,830 r.p.m., and the feed water pump shaft at 435 r.p.m. are coupled together and to the motor by belts. The shafts are adjustable in relation to each other and are each mounted on a pair of Timken tapered roller bearings.

Fuel oil pumped to the atomiser is by-passed by a fuel-control valve until water pressure has been built up by the water pump. When the fuel pressure reaches 60 lb. per sq. in., the atomiser valve opens and the vaporised fuel is ignited by a sparking plug connected to the magneto. If the steam pressure rises above a predetermined figure, a pressure switch stops the driving motor, restarting it when pressure drops to normal. Similarly, excessive superheat causes a bypass to reduce the full pressure and amount of oil being fed to the burner. Completely automatic control equipment is available. When it is desired to use the steam generator as a source of hot liquid for cleaning purposes, a second duplex waterfeed pump with a separate set of control valves is brought into operation. As the fuel feed is constant for any speed, and the supply of water is greatly increased, the boiler is unable to convert it to steam, and produces a hot liquid jet which can be regulated in temperature by control of the suction valve in the second feedwater pump. The boiler will not only handle water, but also mixtures of oil and water or certain chemical solutions in water. This steam generator thus has many applications quite outside the sphere of the normal steam unit. It is made by Gresham & Craven Limited of Salford, Manchester.

FUEL SUPPLIES TO INDUSTRIAL CONSUMERS.—The Board of Trade directs the attention of industrial fuel consumers to the urgent need for avoiding conversions of plant from one fuel to another, except on the advice of one of an appropriate Government Department. Changes may involve diversion of labour and materials from more vital needs and lead to unnecessary fuel supply difficulties. If a change from one type of fuel to another, or the installation of new plant, is contemplated, the consumer should first consult the appropriate Government Department. In the case of a consumer executing contracts for one of the production Ministries, this Ministry should be consulted. Other consumers should approach the appropriate fuel department of the Board of Trade direct; for example, in the case of coal, the Mines Department through its Divisional Coal Officers; in the case of liquid fuel, the Petroleum Department, Millbank, S.W.1; in the case of gas, the Directorate of Gas Supply, Board of Trade, New Oxford House, Bloomsbury Way, W.C.1; in the case of electricity, the Electricity Commission through the local electricity supply undertaking. Special considerations apply for creosote/pitch mixture and pitch. To secure the maximum use of the country's production of creosote and pitch and at the same time a reduction in the use of imported fuel oil, it has been for some time the policy of the Government that consumers previously using fuel oil or creosote should, in suitable cases, turn over to creosote/pitch mixture. Many consumers have already made or are in process of making this change, and those in the latter position are asked to complete the work by the earliest possible date. Further conversions may become necessary but they should not be undertaken except on the advice of the Petroleum Department.

The Czech-German frontier as fixed after the Munich agreement of September, 1938, relative to the various lines of railway. The tinted area shows the territory left to Czechoslovak a as a result of that agreement. The very thin dotted line indicates the pre-Munich frontiers. The separate State of Slovakia extends eastward of Bratislavia. Kutv. and Bohemin

STATE RAILWAYS IN CZECHOSLOVAKIA

An account of the gradual disintegration of the former Czechoslovak State Railways under German pressure, and the enforcement of German methods on the State Railways in the Protectorate of Bohemia & Moravia and in Slovakia

THE relations between the State Railways of Bohemia-Moravia and the Reichsbahn since the Munich settlement of 1938 form a sorry tale of agreements enforced by the Reichsbahn with onerous conditions imposed on the Czech administration; then friction because of the impossibility of carrying out the unworkable arrangements; and afterwards Reichsbahn allegations of Czech "lack of co-operation" and fresh impositions of increased German control. It seems that absolute control by the Reichsbahn will be reached shortly, and that German operating methods and tariffs will prevail on the railways of the "protectorate." The former Czechoslovak State Railways system of some 13,500 km. (say 8,400 miles) carried 98 per cent. of all the goods transported in the country. Difficulties were created by the Germans immediately after the *Anschluss* with Austria, and traffic between German Silesia and Austria was deliberately diverted to the long rail route round the Czech border, when neither physical obstacles nor regulations existed against this traffic *via* Czech territory. The Munich agreement of September, 1938, reduced the railway system by some 2,250 miles of line in Sudetenland, but the remaining system retained its complete independence. Difficulties in carrying out the arrangements at once arose, mostly in connection with the problems of through lines cut by the new frontier, with isolated sections, and also with the allocation of Czech rolling stock. In all cases it was felt that the German demands were exaggerated and in their own favour.

On October 20, 1938, an agreement was forced on the Czechs which constituted the first step towards complete subordination of the Czech Railways to the Reichsbahn. The agreement provided for the operation of German through trains on the main lines Bohumin—Breclav, and Mittelwalde—Brno—Breclav, manned by German staff and run by German operating departments, with the application of German rates and fares, and without customs and passport formalities. Such operation began on November 5 and 11, 1938. These lines are inland main lines of great local importance and, from an administrative as well as operational point of view, it was an impossible arrangement. New demands led to an agreement of December 12, 1939, whereby the German books of rates and fares were to be applied to all traffic between Germany and stations in Moravia routed *via* Bohemia; compensation by the Reichsbahn to the Czech Railways was provided for, but never honoured to the full. Time and again these agreements were used by the Germans as excuses for accusations against the Czech Railways of negligence and lack of co-operation. Incidents between the staffs at the 78 border stations and the "corridor" lines increased the friction.

On March 15, 1939, after the occupation of Bohemia and Moravia, the Czech Railway system was still maintained as an independent administration but reorganised so as to work with the Reichsbahn as one economic unit. The government of the occupied territory (after Slovakia had separated from the rest of the country) was established as the German Protectorate of Bohemia & Moravia. Its railways form an important system, linking North Germany with the Danube territory. Prior to 1918 these lines, in the main, had been part of the Austro-Hungarian railways. The total length in 1939 was 5,868 km. (3,646 miles), of which 5,801 km. (3,604 miles) was of the standard gauge of 4 ft. 8½ in. and 67 km. (42 miles) of 76 cm. (2 ft. 6 in.) gauge. It was divided as follows:—

State Railways under State management	5,668 km. (3,521 miles)
Private railways under State management	104 km. (65 miles)
Total managed by the State	5,772 km. (3,586 miles)
Private railways under company management	96 km. (60 miles)
Grand total	5,868 km. (3,646 miles)

The total rolling stock comprised 2,336 steam locomotives, 26 electric locomotives, 283 railcars, 6,202 carriages, 61,288 wagons, and 356 mail vans.

Preparations for the absorption of the Czech Railways had been prepared by the Reichsbahn departments long before the actual occupation took place. The outbreak of the war in Europe put a stop to further "economic" measures of merger, but preparations were being continued. The first important new step was taken when, from March 27, 1941, German rules for passenger traffic replaced the Czech laws, with a few modifications to accommodate local peculiarities. A hitch appears to have occurred in the similar measures for goods transport, as these were formally introduced later in the year. From May 1, 1941, a unilaterally-imposed common user of rolling stock between Reichsbahn and Czech Railways was in operation, though it was not introduced until November 1 last, as no precise figure could be established for the compensation of the Czech Railways for the loss of wagon hire, the use of Czech rolling stock on German lines being far in excess of that of German stock on Czech lines, and the Germans were in no hurry to settle this matter.

Passenger fares between German and Czech stations have been in accordance with the German scales since September 1, 1941, and it then was announced that the same scales would be applied to inland fares in a month or two. Other measures for the unification of the systems include the use of the German language in all publications, and the introduction of a number of German operating methods. Details for the preparation and carrying out of the reorganisation have been dictated from Berlin.

The Slovak State Railways

A different treatment was meted out to the Slovak State Railways, which were operated as a separate system from March 19, 1939. "Friendly persuasion" methods, similar to those tried out in Scandinavia and the Low Countries, were used, and are being used still; the latest example is a German Transport Exhibition with official receptions held in Bratislava in December last. As the Slovak Government had accepted "independence" at the hands of the German invaders, the railway administration was presumably more inclined to submit to German prescriptions, and on the other hand the principle of "divide and rule" made it worth while for the Germans to accept co-operation of the Slovak State Railways. German operating methods were immediately introduced, and the German language was applied to tariffs and other publications. German assistance amounting to control, was forthcoming for various improvements of the railway system, and works were taken in hand at once to make the 270-km. (167-mile) main line from west to east (from the Moravian border at Mosty to Kosice) suitable for high speeds and heavy trains. Part of this line runs through difficult mountainous country, and new bridges and a tunnel were necessary on the Zilina—Vrutky section; similar works were required in the sections both sides of Strba; on other lines curves were eased, and double track was laid on the Bratislava—Leopoldov section. All these works were in the interest of through traffic between German Silesia and Austria, Hungary, and Roumania, but Slovak local interests were not overlooked. Considerable assistance was given in the construction of loops and new lines to connect inside Slovak territory those sections of lines which were cut by new frontiers, mostly on the new Hungarian border. The most important of these was a new loop north of Lucenec, which junction had become Hungarian, to reconnect the system of local lines branching off the Vrutky—Lucenec—Plesivec main line between the latter two junctions, with the same main line just inside the Slovak frontier. This loop, which was ready

The Czech-German frontier as fixed after the Munich agreement of September, 1938, relative to the various lines of railway. The tinted area shows the territory left to Czechoslovak as a result of that agreement. The very thin dotted line indicates the pre-Munich frontiers. The separate State of Slovakia extends eastward of Bratislavia, Kuty, and Bohumin

in February, 1940, runs from Tomasovce on the main line, to Velka-Ves on the Lucenec—Utekac branch line, both stations a few miles out off Lucenec on their respective lines. Other connecting links in the district were mentioned in THE RAILWAY GAZETTE of September 26, 1941, when progress was far advanced, and some sections even completed.

A second important link in the same class was the Presov—Straszke line to reconnect the railways in the farthest east corner, cut off from the main line at Michalany, east of Kosice, which are both now in Hungary.

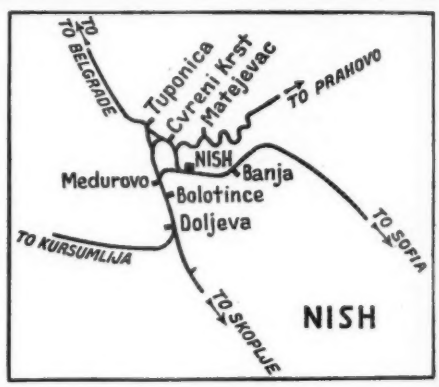
Improvements to track layouts and new station building were taken in hand at Bratislava; Trencin Junction, on the Bratislava—Zilina main line; Zilina, the junction of the north-south main line from Bratislava and the east-west main line to Kosice; Strba, on the latter line; and Presov Junction, on the line from Kosice to the Polish frontier, the last-named line has presumably developed into a through Hungarian-Polish route. New links are also under construction from the frontier station Circ, to the railways east and west, at Bardejov and Podolinec respectively.

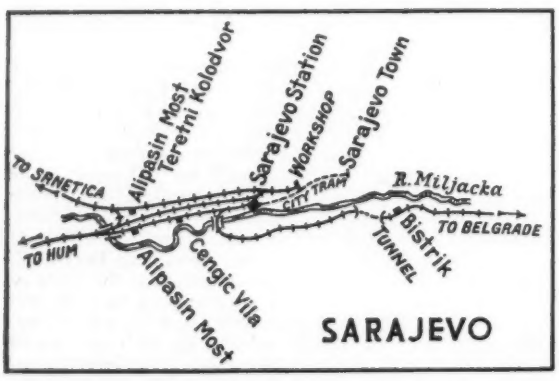
In the middle of 1939 the Slovak State Railways totalled 2,265 km. (1,407 miles), but, under an agreement signed in Berlin on November 21, 1939, after the German occupation of Western Poland, Germany agreed to restore to Slovakia the coal-producing and industrial area in Silesia, around Teschen, which Poland had taken from Czechoslovakia in 1938, after the Munich Agreement. This further change, and the addition of newly-built lines, have brought the total route mileage of the Slovak State Railways up to 2,545 km. (1,583 miles). Slovakia still has 31 private railways, most of which are already Government-operated, and the grand total of railways in the country is approximately 2,808 km. (1,745 miles).

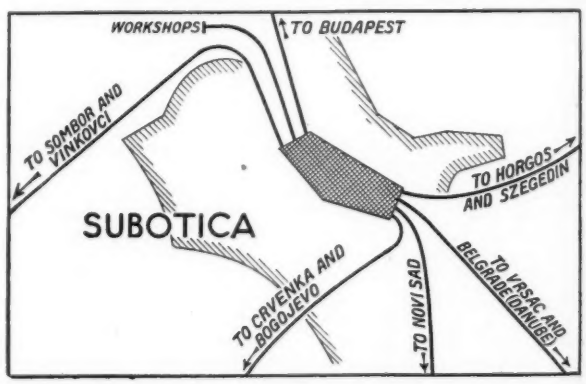
The rolling stock of the former Czechoslovak State Railways system has been divided between the lines in the Protectorate of Bohemia & Moravia and those in Slovakia; a white rectangle is painted on the former and a white triangle on the latter, in addition to the existing lettering CSD. These letters are gradually being altered on the Slovak wagons to SZ, standing for *Slovenské Zeleznice* (Slovak Railways). The railway system is managed by the Ministry of Public Works in Bratislava. The lines are of great importance to the economic life of central and south-east Europe, serving not only to connect the Silesian coal and industrial region with the Danube Valley, but providing part of a direct connection for the south-eastern States with the Baltic and North Sea.

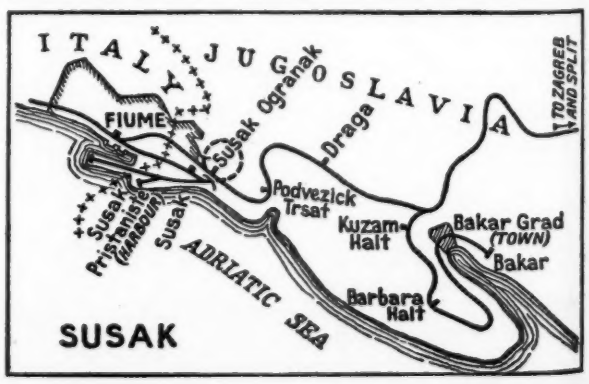
On February 1, 1940, separate rates of charges were introduced by the Slovak State Railways; before that date the former Czechoslovak arrangements prevailed, in common with Bohemia & Moravia.

Some Important Railway Junctions on the Jugoslav State Railways









A TRANS-AFRICAN RAILWAY

A brief description of the continuous chain of 3 ft. 6 in. gauge lines, 2,926 miles in length from Lobito (in Portuguese Angola) on the Atlantic, to Beira on the Indian Ocean

ALTHOUGH railway development in Africa has resulted in the use of many gauges and a variety of construction standards, there has been a marked tendency during the present century for all railways in the southern part of the continent, namely that below about 10 degrees south of the equator, to be built to the uniform gauge of 3 ft. 6 in.—which is, in effect, the standard gauge for southern Africa—and for these lines to be equipped with rolling stock capable of through working. The west-east Trans-African all-rail route from Lobito to Beira, in particular, is a continuous line of this standard 3 ft. 6 in. gauge. Through running over the intervening 2,926 miles of railway is quite feasible, and might be expected to take about a week. This compares with a sea voyage of, perhaps, 3,500 miles round the Cape taking at least twice as long, and there are the further advantages that the land route is immune from enemy interference and a considerable tonnage of shipping would be saved; the latter now perhaps, the most vital factor.

Moreover, back-loading of an important war commodity, copper, from the great and rich Katanga deposits, directly tapped by the railway, would be available, as well as other minerals and valuable commodities from southern central Africa. Incidentally, any improvement of this land route would facilitate peacetime copper exports to the United Kingdom, as a reduction of 2,644 miles of sea transport, plus 600 miles of rail carriage is secured *via* Lobito as compared with the Beira and Mediterranean route.

Lobito is reputed to be the finest harbour on the west coast of Africa, and consists of a land-locked lagoon 2½ miles long and a mile wide, of which some 1,000 acres have a minimum depth of water of 34 ft.

The Benguela Railway Section

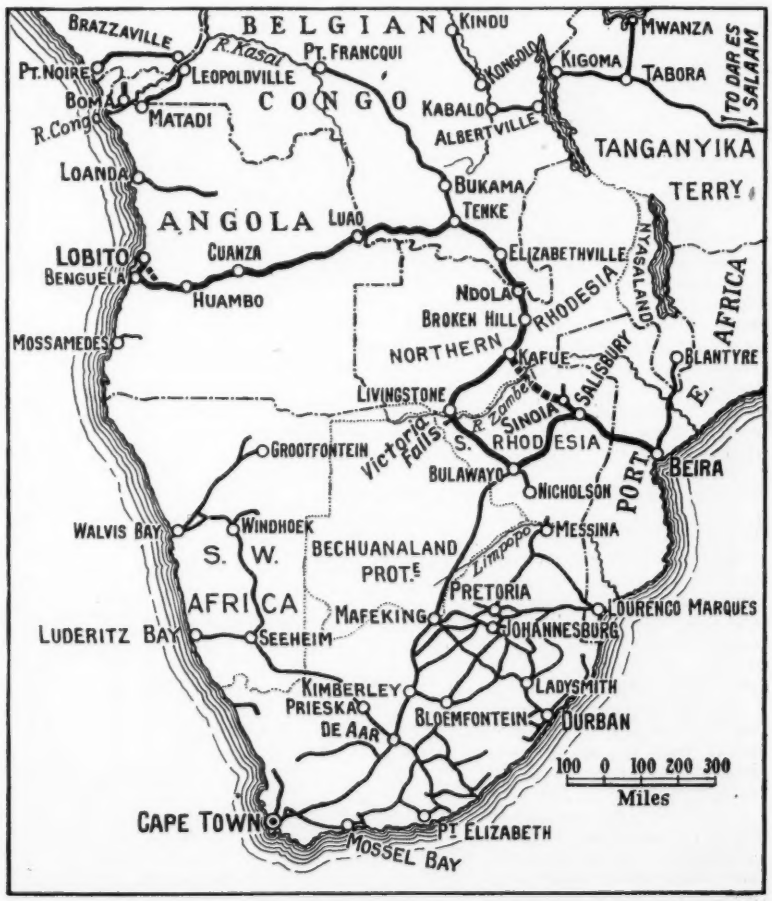
The first 837 miles of this rail route are owned by and worked as the Benguela Railway, which runs right across the Portuguese West African colony of Angola to Luao on the Belgian Congo frontier. The Benguela Railway Company has its head office in Lisbon, but there is also a London committee, due to the fact that 90 per cent. of the share capital is held by a British concern, Tanganyika Concessions Limited; the remaining 10 per cent. is held by the Portuguese Government. The company was incorporated in Portugal in 1903 and has a 99-year concession. Though owned by a nominally Portuguese company, the railway owes its inception to Sir Robert Williams, who obtained the concession for building and working it, and some £12,000,000 of British capital have been sunk in it.

Construction began in 1904, but it was not until June, 1929, that the whole line was opened for traffic to Luao. From Lobito it first runs down the coast to Benguela, the old port of Angola, and then turns inland. Difficult country is quickly entered and at Lengue, 32 miles from Lobito, an impressive gorge is traversed. Here the line has to rise from 318 ft. to 774 ft. above sea level in a distance of only 2½ miles, a task found to be impossible with the normal ruling gradient adopted, 1 in 40. A length of about 1½ miles was, therefore, built with a ruling grade of 1 in 16½—effective gradient due to curvature 1 in 15½—and a rack installed. This rack is of the Riggenbach ladder type and is in 3-m. lengths. The rungs are lubricated regularly with a mixture of soft soap (25 per cent.) and lubricating mineral oil (75 per cent.), and wear has been found so slight that the original rack was still in service in 1938, just 30 years after the rack section was opened. Apart from replacement of some rungs and the outer running rail on curves, which have a minimum radius of 7½ ch., few replacements have been needed. The line crosses the gorge twice in the course of the rack section amid fine scenic country.

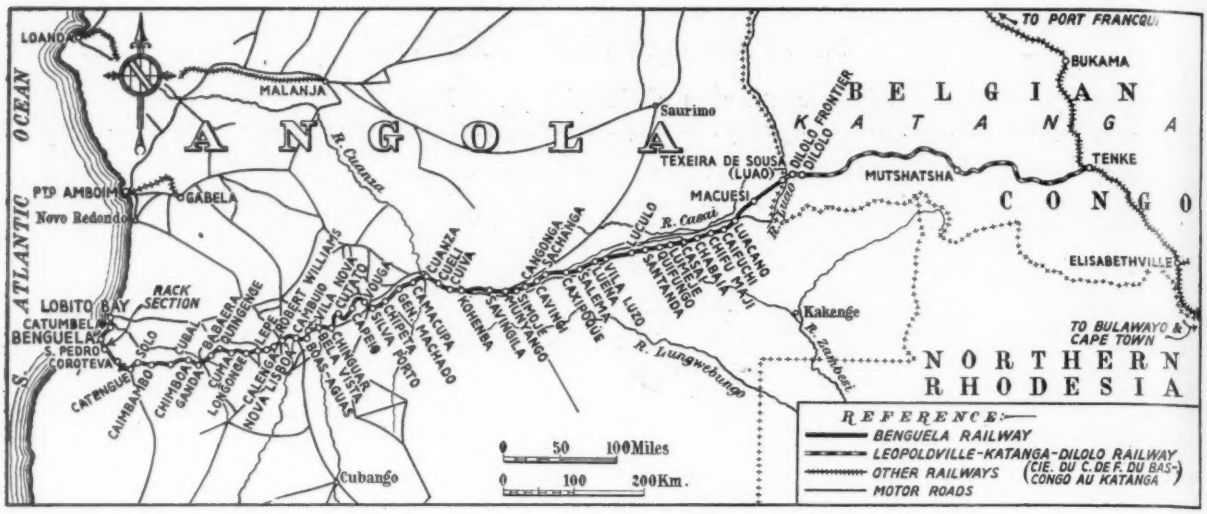
The four rack locomotives also were still in service after 30 years' work. They are of the 0-6-2 tank type, using saturated steam, and are always below their trains on the incline; they are capable to propelling 160-ton trains up the 1 in. 16½ grades at speeds of 7-10 m.p.h. Their more important particulars are:—

Cylinders (4)	17⅛ in. by 18⅞ in.
Coupled wheels, dia.	3 ft. 4 in.
Boiler pressure...	200 lb. per sq. in.
Heating surface	1,027 sq. ft.
Grate area	20 sq. ft.
Total weight	45·3 tons.
Weight available for adhesion	36 tons

As the illustration shows, the cylinders are in pairs, the high pressure driving the adhesion coupled wheels and the low pressure—which are directly above the high pressure—the rack pinion through gearing; the piston travel speed of the l.p. pistons is 2·56 times that of the h.p. pistons. Vacuum,



Sketch map of the Trans-African line, and neighbouring railways



The railways between Lobito and Elizabethville

hand, band, and Riggenbach counter-pressure brakes are fitted. The two band brakes act on grooved band wheels (1) on the first motion shaft of the rack gearing, and (2) on a second rack wheel which runs loose on the leading coupled axle.

The first 122 miles from Lobito to Cubal were opened in 1908, and the succeeding length to Chinguar (324 miles from Lobito) in 1913. The war of 1914-19 then interrupted progress and work was not resumed until 1920. Silva Porto, 392 miles, was reached in January, 1924. A feature of the first 101 miles from the coast is that nowhere is there any permanent supply of sweet water available.

After leaving the rack section, the line continues to climb steadily until at Calenga, 240 miles from Lobito, the highest point, 6,100 ft. above sea level, is reached. The ruling gradient as far as Huambo, 25 miles farther on, is 1 in 50, but thereafter it is 1 in 80 throughout the remaining 572 miles to Luao.

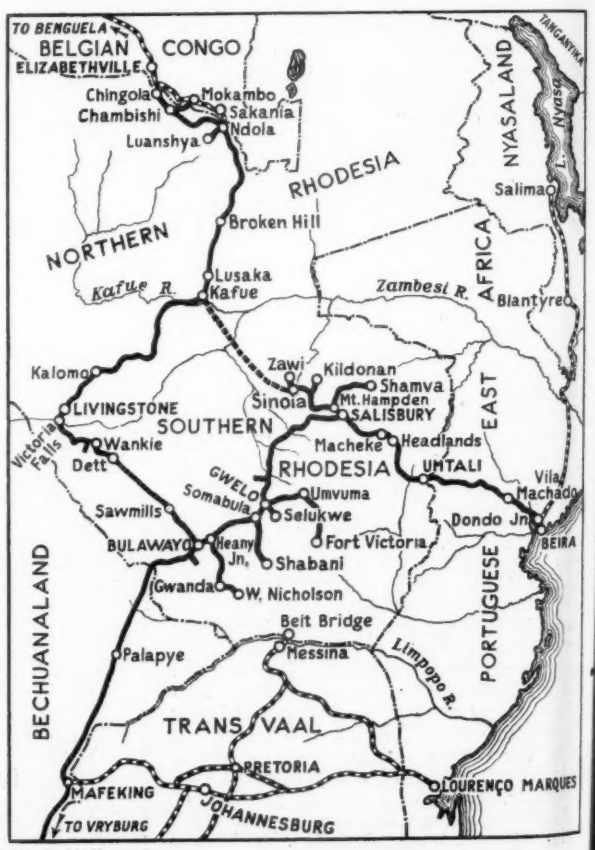
Locomotive Stock

At Huambo, 5,700 ft. altitude, well-equipped and up-to-date workshops are established, and a large European colony has come into being there. The shops are capable of dealing with all the repairs of the fine stud of modern locomotives and continuous-brake rolling stock owned by the company. There are 4 rack locomotives, 20 very fine examples of the Beyer-Garratt type, and a large number of 4-8-0 engines built by the North British Locomotive Co. Ltd.; the locomotive stock is completed with a few 0-6-0 tank and other types of engine; there are 76 locomotives in all.

The Garratts were built by Beyer Peacock & Co. Ltd., of Manchester; 6 were originally ordered and proved so successful in working over the long heavy grades that a further 14 of substantially similar design were purchased. They exert a tractive effort of 46,200 lb. at 75 per cent. boiler pressure and are of the 4-8-2 + 2-8-4 wheel arrangement. The maximum axle loading, 13 tons, is limited by the fact that the line is laid throughout with 60-lb. rails; the sharpest curves are of 7-ch. radius. The four cylinders are each 18½-in. dia. by 24-in. stroke, and these 158-ton machines are capable of hauling 500-ton trains up the 1 in 40 grades.

The 4-8-0s have 4 ft. 6 in. dia. coupled wheels and are used on the less heavily graded sections of the line. It is significant that all locomotives are wood-burning, a condition imposed by lack of coal and because there are hundreds of miles of forest adjacent to the line.

The bulk of the carriage stock was built by the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd., and consists of first and second class saloons, dining cars, private saloons, and third class coaches. All are mounted on similar underframes and bogies and are 62 ft. 2 in. long by 8 ft. 10 in. wide by 12 ft. 1½ in. high (rail to roof); the bogie centres are 47 ft. 6 in. apart and the bogie wheelbase is 6 ft. 1 in. There are in all 47 carriages, 18 guards' vans, and 591 goods vehicles. The last-named also are mainly Metropolitan-Cammell-built, some covered and some low-sided open wagons. The capacity in each case is about 35 tons and again the underframes and bogies are standardised for both types; they are 37 ft. over headstocks and 7 ft. 9 in. wide inside, and have bogies with 5 ft. wheelbases spaced 25 ft. apart. All carriage and wagon stock is vacuum braked.

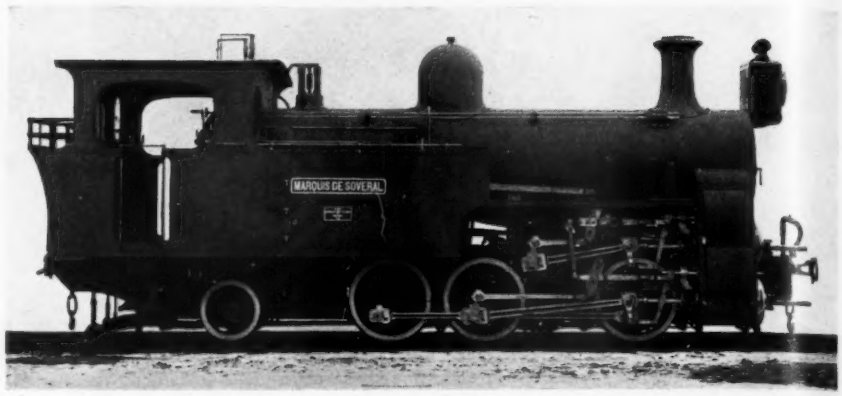


The railways between Elizabethville and Beira

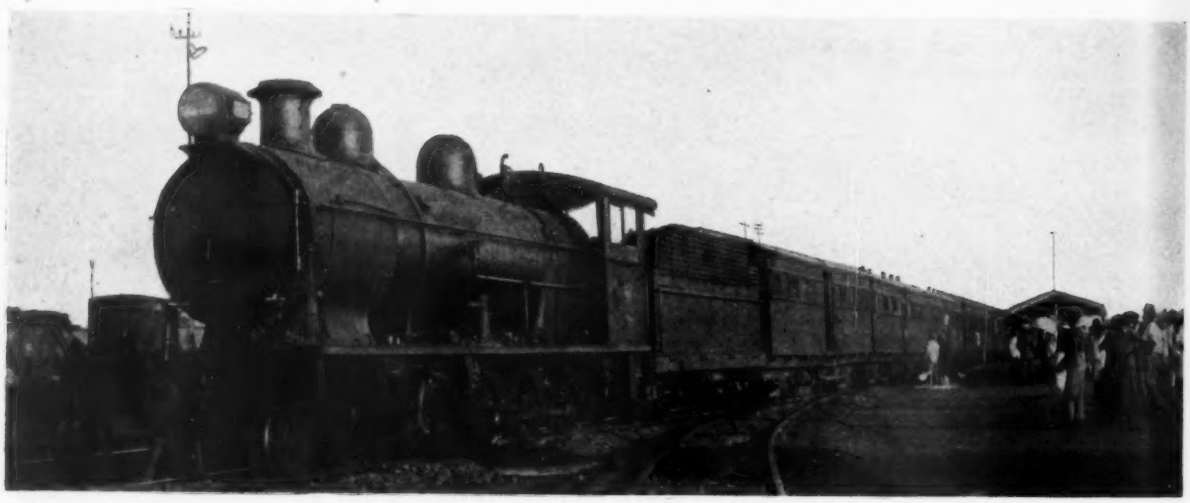
Left: Beginning of the rack with Eduardo Costo viaduct in background, Benguela Railway

Below: Bridge over the Lubilashi River, Katanga Railway

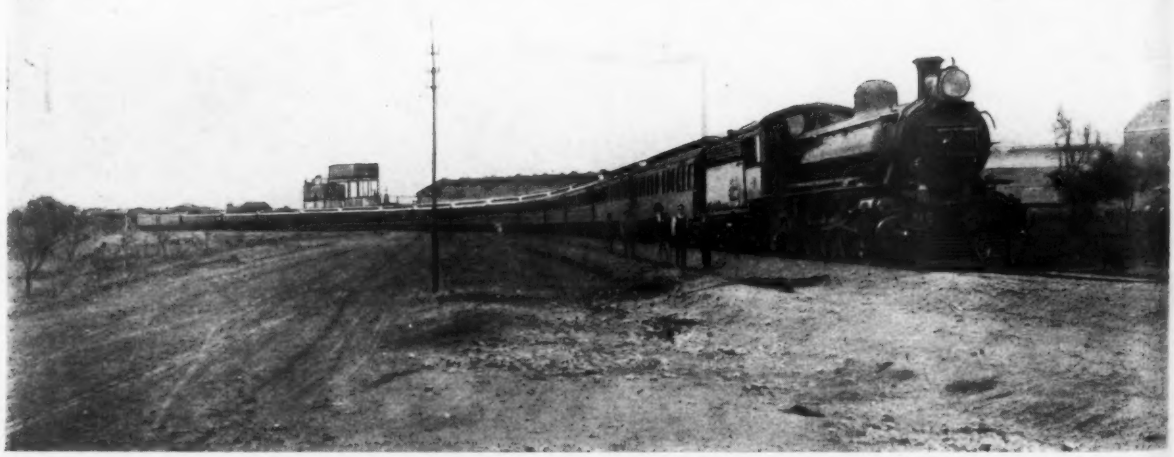
Victoria Falls Bridge, Beira & Mashonaland & Rhodesia Railways



Right: Rack locomotive built by the Maschinenfabrik Esslingen for the Benguela Railway



Train leaving Eleville for Bukama, Katanga Railway



Mail train on the Beira & Mashonaland & Rhodesia Railways

The financial results of the Benguela Railway Company for the year 1940 as compared with those for 1939 were as follow :—

	1939	1940
Passengers, number	202,785	212,143
Goods and minerals, metric tons	321,722	333,082
Operating ratio, per cent.	62·22	59·59
	£	£
Gross operating receipts	366,228	369,941
Operating expenditure	227,839	220,437

After deducting Lisbon and London expenses (less sundry receipts) £21,456, and crediting £65,000 to renewal reserve account, the excess of receipts over expenditure was £62,998, and this amount was set aside for debenture redemption. The number of passengers increased by 5 per cent., and there was also a satisfactory increase of 14,381 tons of minerals, which more than compensated the fall in tonnage of international goods. Despite increased volume of traffic, train mileage fell from 1,297,109 km. to 1,161,051 km., and there was a corresponding decrease in expenditure.

Mixed train at N'Guba, Katanga Railway

The Belgian Katanga Railway Section

The next section of line forming the Trans-African route is the branch from Luao and Dilolo (on each side of the frontier) to connect with the Katanga system at Tenke ; the distance to Tenke is 324 miles. This section was completed in July, 1931, when for the first time through running was possible from ocean to ocean.

At Tenke the main line from Port Francqui—where connection is made by river and rail with Brazzaville, Pt. Noire, Kinshasa, Leopoldville, Matadi, and Bomba, at and near the mouth of the Congo river—and Bukama is joined. But it is the southern section from Tenke to Elizabethville and Ndola on the Rhodesian frontier that forms the next link in the Trans-African chain.

Construction began at the Rhodesian end of this link, and was completed to Elizabethville, (165 miles) in 1910, and the next 100 miles were opened in 1913. The outbreak of war then delayed matters, but the subsequent Belgian African campaign caused construction again to be pushed on and Bukama was reached in 1918 ; Tenke was probably passed a little earlier. Strictly speaking, the Ndola-Tenke-Luao section is part of the Katanga Railway, but in common with all lines in this part of Congo territory, it is worked by the Bas Congo-Katanga Company, owner of the lines north of Bukama. The distance from Tenke to Ndola is 319 miles, so that the B.C.K.-worked section of the through route is 643 miles and taps the rich Katanga copper area.

The Rhodesian Section Ndola-Beira

The first railway constructed from Beira in the " 90's " was of 2 ft. gauge and ran to Umtali, a distance of 220 miles. But in 1899 the 170-mile Umtali-Salisbury 3 ft. 6 in. gauge line was completed, and about the same time the conversion of the Beira-Umtali line to this gauge was begun. It was also realigned and, in consequence, the length was reduced to 204 miles, so that by the beginning of the present century there was a 374-mile standard (3 ft. 6 in.) gauge railway connecting Salisbury with Beira. The next section to be opened was Salisbury to Bulawayo, a distance of 299 miles, in 1902.

At Bulawayo connection was made with the famous Cape to Cairo railway running northwards *via* Vryburg and Mafeking, and continuing eventually through Victoria Falls and Broken Hill to the Katanga (Belgian Congo) frontier at Ndola. The section of this line from Ndola to Bulawayo forms the next link from the west in the Trans-African route. The line from Bulawayo to the Zambesi at Victoria Falls skirts the eastern edge of the Kalahari desert, and here is the longest unbroken length of straight track in Africa, 72 miles long.

The crossing of the Zambesi required considerable investigation and the best site for the bridge would have been some five miles above the falls. Cecil Rhodes, however, insisted on the erection of the existing bridge across the gorge below the falls, thus providing an ideal view of that world-famous-spectacle. Work upon the bridge was, accordingly, begun in 1904. The structure was designed by Sir Douglas Fox & Partners and constructed and erected by the Cleveland Bridge Company of Darlington.

Meanwhile, with the aid of an aerial cableway across the river, construction on the far side was continued to Kalomo, a further 100 miles, and this length was finished in 1905. The next 274 miles to Broken Hill contained one obstacle, the Kafue river, but otherwise nothing delayed the remarkably rapid progress that marked the building of the whole of thi route from Beira. The 688 miles of line from Salisbury to Kalomo had, in fact, been completed in about six years, and the rails were linked to Broken Hill from Kalomo (274 miles) in 270 working days ; Broken Hill was reached early in 1906.

The remaining 110 miles from Broken Hill to the Katanga border at Ndola was not long delayed, thus completing the 1,242 miles of line in Rhodesian territory and 1,446 miles from Beira in 1909. The whole of this section is worked by the Rhodesia Railway. From a previous paragraph, it will have been seen that the construction work continued straight on into Katanga, the next 100 miles of line in that territory being completed in 1910.

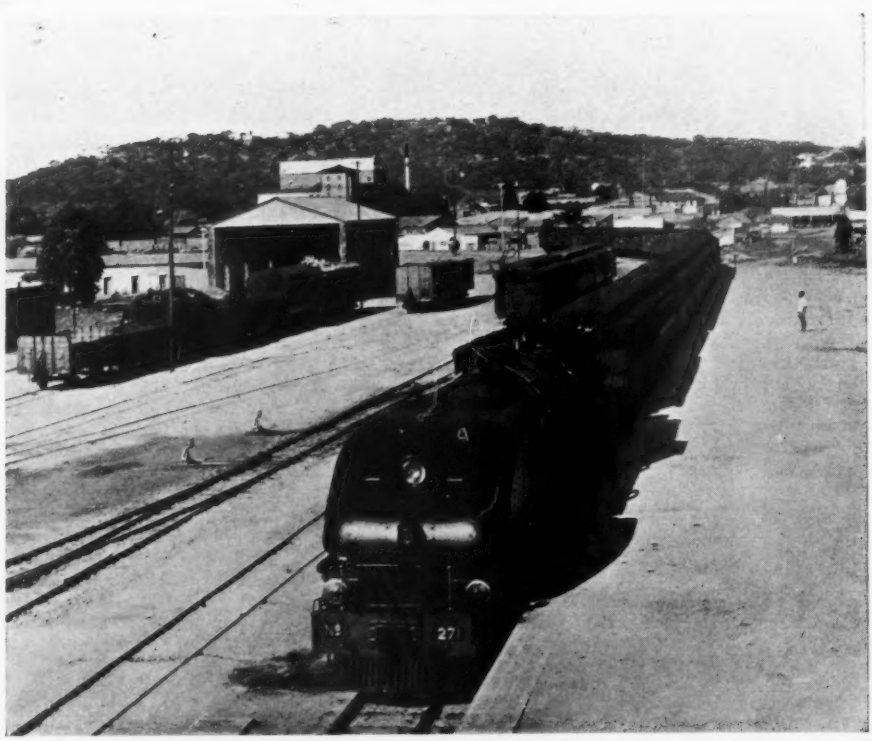
The principal types of locomotive in service are powerful 2-6-2 + 2-6-2 Beyer Garratts, a variety of 4-8-2s—including some 30 engines with 22 in. × 24 in. cylinders, 4 ft. coupled wheels, and capable of exerting a tractive effort of 32,760 lb.—and also a large number of 4-8-0s. In view of the heavy mineral traffic carried, a 45-ton 40-ft. open bogie wagon, giving a ratio of 74 per cent. paying load, has been standardised. As well as ordinary and comfortable carriage stock, a speciality

is a type of 41 ft. 6 in. composite goods guards' brakevan providing second and third class accommodation—including 12 sleeping berths in the former class—for the carriage of passengers by goods train, also in comfort. Up-to-date and extensive workshops are situated at Bulawayo.

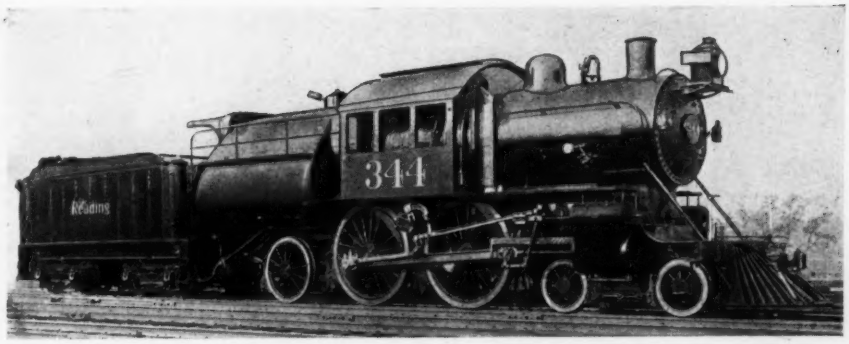
The latest financial figures show that the capital of the Rhodesia Railways takes the form of £500,000 shares and £21,753,673 4¼ per cent. debenture stock. The gross revenue during 1939 was £4,481,176 and the corresponding working expenditure including provision for depreciation was £3,094,333, leaving as net earnings £1,386,843. The total route-mileage worked is 2,445 miles, all of 3 ft. 6 in. gauge.

A glance at the sketch map on page 303 will show that the Trans-African line as it exists is far from direct. Two important improvements to the alignment—one also greatly improving the traffic-hauling capacity of the line—would be: (1) a direct line from Lobito up the Catumbela river, cutting out the detour *via* Benguela and eliminating the Lengue rack section that so seriously limits train loads; and (2) a direct chord line from Kafue to Sinoia, on an existing branch from Salisbury. This cut-off would reduce the overall distance by over 500 miles at the expense of a 250-mile length of new construction, including a bridge over the Zambesi, which, however, it is said, would not be very expensive.

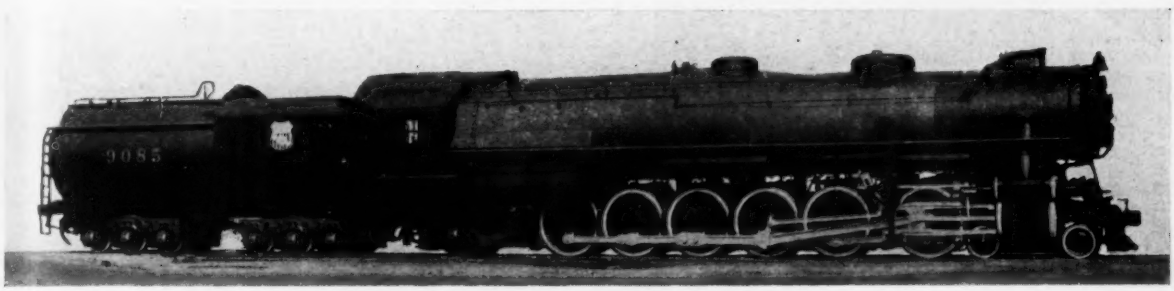
New 4-6-4 + 4-6-4 *Beyer-Garratt locomotives outside Salisbury shed*



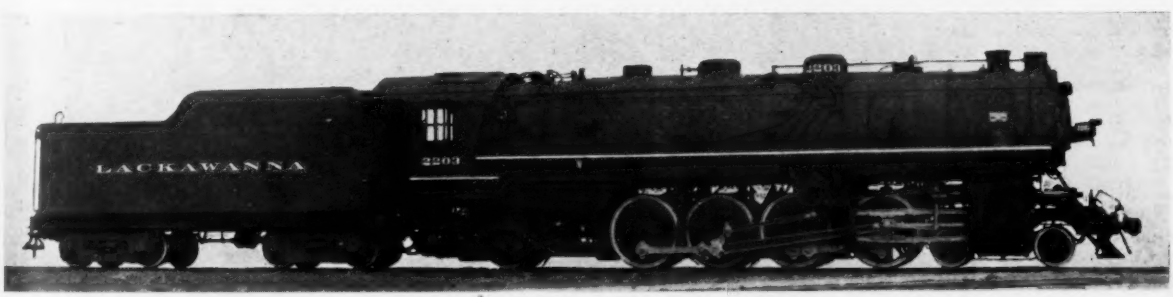
The Rhodesia Limited entering Bulawayo, Rhodesia Railways, headed by a Beyer-Garratt 4-6-4 + 4-6-4, *No.* 271



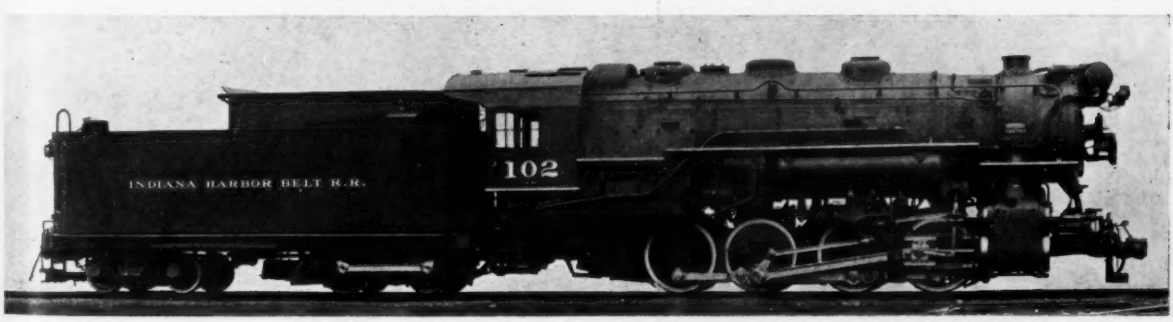
4-4-2 type passenger locomotive built by Philadelphia & Reading Railway. Cylinders 18½ in. by 24 in. Coupled wheels 6 ft. 8 in. dia.



4-12-2 type heavy freight locomotive, Union Pacific Railway. Cylinders 31 in. by 32 in. Coupled wheels 5 ft. 7 in. dia



4-8-2 type freight engine Delaware, Lackawanna & Western Railway. Cylinders 25 in. by 25 in. Coupled wheels 5 ft. 3 in. dia.



0-8 0 type shunting locomotive, Indiana Harbour Belt Railway. Cylinders 28 in. by 32 in. Wheels 4 ft. 9 in. dia.

THREE-CYLINDER LOCOMOTIVES BUILT IN AMERICA FOR PASSENGER, FREIGHT, AND HEAVY SHUNTING SERVICE *(See editorial note on page 291)*

Typical Scenes on Chinese Railways

Shihchiachwang junction on the Cheng-Tai Railway; also the Canton-Hankow Railway construction

Shihchiachwang Station, Cheng-Tai Railway. This line connects with the Peking-Hankow Railway here, and has recently been extended eastwards to Tehchow

A typical section of the Canton-Hankow Railway construction in the Pei Kiang gorge with No. 3 tunnel in the background

A rock cutting on the Canton-Hankow Railway while still under construction

Shihchiachwang locomotive running shed prior to the conversion of this, the Cheng-Tai Railway, from metre to standard gauge.

GENERAL NEWS SECTION

PERSONAL

G.W.R. Appointments

Mr. F. W. Showers, Surveyor & Estate Agent, Great Western Railway, is retiring on March 31, 1942. The Directors have appointed Mr. F. C. Hockridge to be Surveyor & Estate Agent in succession to Mr. Showers.

The Directors have also agreed that Mr. G. E. Orton, Commercial Assistant to the Superintendent of the Line, shall be designated Commercial Assistant to the Superintendent of the Line & Public Relations Officer.

It was announced on February 19, when the War Cabinet was reconstituted, that Mr. Oliver Lyttelton, Minister of State, would supervise production, and that Lord Beaverbrook, Minister of Production, had left the War Cabinet and would shortly go to the United States where he would carry on the work he had already begun in the pooling of resources of the united nations.

It was announced on February 22 that the King had approved the appointment as President of the Board of Trade of Mr. Hugh Dalton in place of Colonel J. J. Llewellin, who becomes Minister of Aircraft Production.

Indian Railway Staff Changes

Mr. G. H. Lamb has been appointed to officiate as Deputy Chief Mechanical Engineer (Locomotive), G.I.P.R., as from October 22, 1941.

Mr. R. Whitworth, Signal Engineer, E.B.R., has been permitted to retire from Government service as from October 13, 1941.

Mr. D. W. Coates, Chief Accountant of the Central Electricity Board, has been appointed Honorary Financial Adviser to the Petroleum Department.

Mr. R. J. Howley, who has been Deputy-Chairman for some years, has been elected Chairman of the British Electric Traction Co. Ltd.

Mr. A. H. Railing, who has been a Director of the General Electric Co. Ltd. since 1911, has been appointed Vice-Chairman of the company.

Sir Samuel Beale, K.B.E., has been appointed Chairman of the Business Members of the Industrial & Export Council in succession to the late Sir F d'Arcy Cooper, Bart.

Mr. C. E. Rooke has been appointed General Manager, Nigerian Railway, on the retirement of Mr. J. H. McEwen after the expiration of his leave.

We regret to record the death, on February 12, of Mr. Desmond F. C. FitzGerald, as the result of an accident. Mr. FitzGerald was a Senior Resident Engineer of the London Passenger Transport Board.

Mr. W. Heckroodt, Chief Accountant, South African Railways & Harbours, who, as recorded in our December 12 issue, has been appointed Chief Traffic Manager, was born in the Orange Free State on December 17, 1892. He joined the service in 1908 in the Transportation Department and served in turn at Springfontein, Viljoens Drift, Dewetsdorp, Kroonstad, Brandfort, Bloemfontein, Parys, Heilbron, Paardeberg and Durban, steadily advancing in rank through the clerical and Stationmaster's grades until he was appointed Welfare Officer on the Orange Free State system in 1927. In 1928 he was transferred to the office of the Railway Board at Pretoria, and was

Mr. W. Heckroodt

Appointed Chief Traffic Manager, South African Railways & Harbours

appointed Private Secretary to the Minister of Railways, and the Railway Board in 1932, which position he vacated in 1934 on his appointment as Staff Controller in the General Manager's office; he later became Superintendent (Staff). In 1936 he became System Manager, Pretoria, and three years later he was appointed understudy to the Chief Accountant. In January, 1940, Mr. Heckroodt was advanced in rank to Chief Accountant. Mr. Heckroodt passed the Associate Examination of the Institute of Transport in 1931 and later was made a member of the institute. He is Vice-Chairman of the Board of Management of the South African Railways & Harbours Children's Homes.

We regret to record the death in Madrid, on November 4, of Señor Ramon Sanchez-Moreno, editor and founder of the journal *Ferrocarriles y Tranvias*. Señor Sanchez-Moreno, who was 43 years of age, was a civil engineer, with considerable tramway and railway experience. He was chief engineer to the Central Aragon Railway and was a director and consultant of several other transport undertakings.

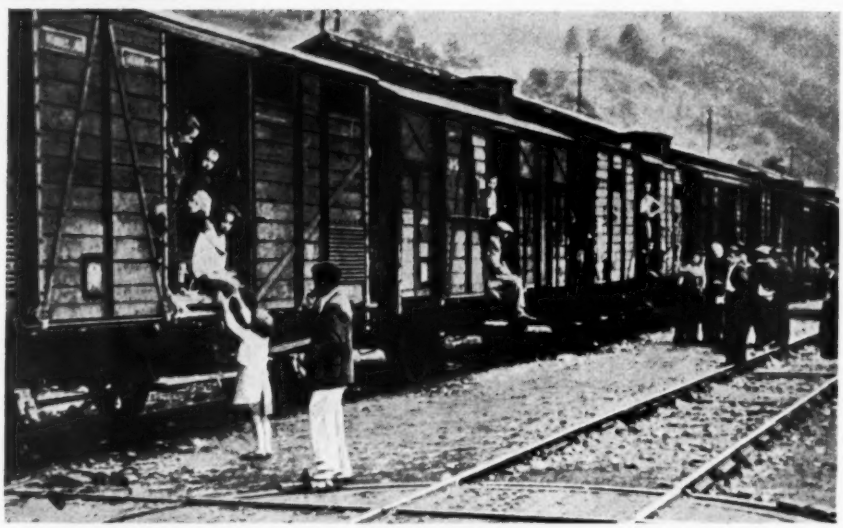
Mr. H. G. Salmond, who, as recorded in our issue of February 6, is now Chief Government Inspector of Railways under the Department of Communications in India, was born in 1889, was appointed by the Secretary of State for India to be an Assistant Engineer on the State Railways cadre in October, 1911, and was posted to the Eastern Bengal Railway. From July, 1915, to June, 1919, he was on military duty, returning to the E.B.R. thereafter. In October, 1923, he was promoted to the grade of Executive Engineer and was selected for appointment as Deputy Director, Civil Engineering, with the Railway Board. In October, 1932, Mr. Salmond was promoted to be Deputy Chief Engineer on his own railway, and in March, 1933, was appointed Deputy Agent (General Manager), Works, E.B.R. In April, 1938, he was confirmed as Deputy Chief Engineer in a provisionally permanent capacity. Under the reorganisation by which the railway inspectorate was recently divorced from the Railway Board and placed under the Department of Communications, Mr. Salmond was appointed to be the first Chief Inspector, the Indian counterpart of the post held by Sir Alan Mount under the Ministry of War Transport in this country.

Colonel S. J. Thompson, D.S.O., M.I.Mech.E., Governing Director of John Thompson Limited, Wolverhampton, has been elected President of the Institution of Mechanical Engineers, in succession to Mr. W. A. Stanier, Chief Mechanical Engineer, London Midland & Scottish Railway, whose term of office has expired.

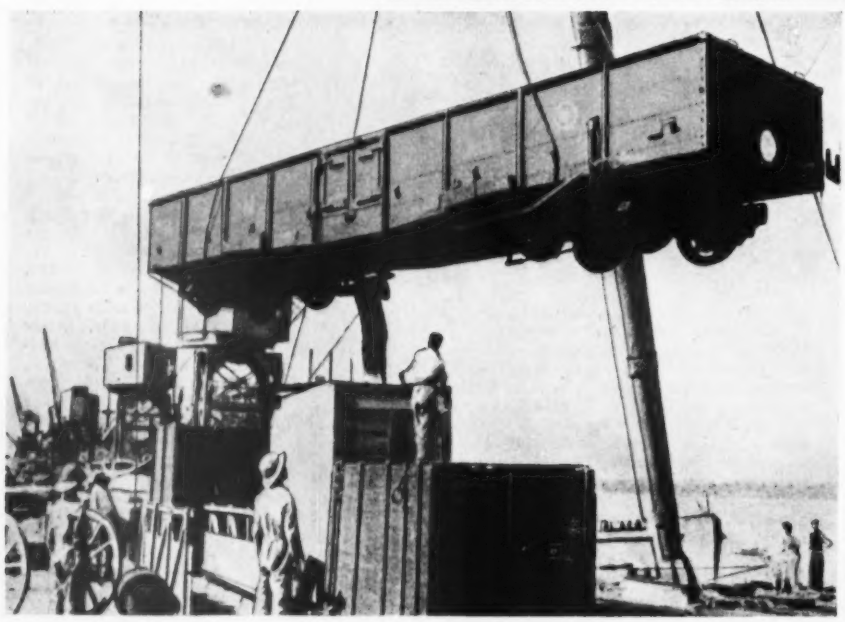
We regret to record the death on February 16 of Sir Robert Elliott-Cooper, M.Inst.C.E. He was born in Leeds in 1845, educated at the Leeds Grammar School, and began his engineering career as a pupil of John Fraser, of Leeds. After several years as resident engineer on railways then under construction in Yorkshire, he commenced to practise on his own account at Westminster in 1876. He assisted in the construction of railways in England, the Crown Colonies, South Africa, and Italy, and was Consulting Engineer for Nigerian and Gold Coast railways from 1908-1916, and also was Consulting Engineer to the Regent's Canal & Dock Company, now known as the Grand Union Canal Company. During the last war he was Chairman of the War Office Committee of the Institute of Civil Engineers. He was created K.C.B. in 1919.

Railways and the War—103

Left: Royal Engineers examining boiler tubes in the course of their training in locomotive maintenance



Right: French refugees leaving goods wagons in which many of them have left their homes for the unoccupied territories



Ships which carry supplies for Russia have also taken wagons which are used to transport the war materials to our Allies

Left: A wagon being swung ashore at a port in the Middle East

TRANSPORT SERVICES AND THE WAR—129

Civilian air raid casualties in January — Fuel prices increased and basic ration reduced—New railways in the Middle East—Trans-African highways—Swiss transit traffic through Spain—European rail and road changes—Malayan railways re-opened

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids on the United Kingdom during the month of January :

Killed (or missing and believed killed)	112
Injured and detained in hospital	61

Details are as follow :—

	Men	Women	Under 16	Total
Killed (or missing believed killed) ...	28	66	18	112
Injured and detained in hospital	25	28	8	61

Fuel Price Increases

Petrol was increased in price by a 1d. a gallon from Tuesday, February 17, to 2s. 1½d. The Petroleum Board issued the following official statement : Owing to increased costs of importing and distribution it has been found necessary to increase the prices of petroleum products as follow :—

Motor Spirit.—Increase of 1d. a gallon in the retail price, making the ex-pump price of pool motor spirit in the England and Wales and South Scotland zone 2s. 1½d. a gallon. The new wholesale price will be 1s. 10d. a gallon.

Diesel Oil for Road Vehicles.—Increase of 1½d. a gallon.
Vaporising Oil.—Increase of 1d. a gallon.
White Spirit.—Increase of 1½d. a gallon.
Gas Oil (*Inland trade schedule*).—Increase of 1½d. a gallon.
Diesel Oil (*other than for road vehicles*) (*Inland trade schedule*).—Increase of 1½d. a gallon.
Fuel Oil and Heavy Fuel Oil (*Inland trade schedule*).—Increase of 1½d. a gallon.

The Government agreed to the increases.

Reduction in Basic Petrol Ration

The Secretary for Petroleum has announced a reduction in the basic ration for private motorists. A saving of approximately one-sixth is aimed at in the current basic ration period. This will be obtained by halving the petrol value of the basic ration for April. The existing regulations limiting the exchange of coupons for petrol to the months specified will remain unaltered ; but early notice is given of the forthcoming reduction, so that motorists may be able to even out their consumption over the whole three months. The reduction in the current basic ration period will be continued in the next period (May, June, and July), but will be spread as evenly as possible over these months. The following table sets out the scale of allowances referred to in the official announcement :—

H.P.	February	March	April	May	June	July
1–9	5 gal.	4	2	4	4	3
10	5 "	5	2½	4	4	4
11–12	6 "	5	2½	5	4	4
13–15	6 "	6	3	5	5	5
16–19	7 "	7	3	6	6	5
20 and over ...	8 "	8	4	7	7	6

Provision of Soap in Trains

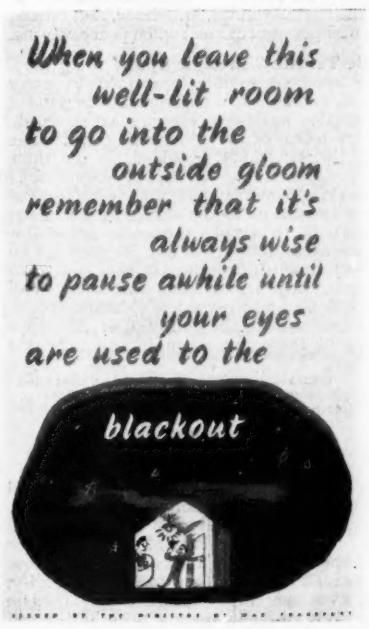
In view of the prevailing shortage of soap, which became a rationed article on February 9, the British railways have announced with regret that it will no longer be possible to provide soap tablets in trains.

Salvage from Disused Cumberland Viaduct and Station

Rails and parts of the disused viaduct which formerly spanned the Solway Firth from the English to the Scottish side from Bowness-on-Solway have been surrendered in connection with the Cumberland drive for scrap-iron salvage. Other heavy scrap given up in the Bowness area includes a disused railway station platform at Port Carlisle, about which there is a good quantity of scrap iron.

Invasion Orders for Railwaymen

A leaflet headed " Duty of Staff in the Event of Invasion," has been issued by the Railway Executive Committee to the employees of the undertakings controlled by the Minister of War Transport. It points out that instructions of importance to railway workers are contained in the Government pamphlet " Beating the Invader." which informs the public that persons in areas away from the fighting should remain in their own district and carry on as usual, The Railway Executive Committee states in the leaflet that railway workers have the " special orders " referred to in the pamphlet. In outlining these " special orders," the leaflet says that railway employees must remain at their posts, and make every endeavour



LIMITATION IN WEIGHT OF PACKAGES BY PASSENGER TRAIN from MONDAY, 16TH FEB., 1942

In exercise of the powers conferred upon him by Regulations 55 and 56 of the Defence (General) Regulations, 1939 (a) and of all other powers enabling him in that behalf, the Minister of War Transport hereby orders as follows:—

1. No package exceeding one hundred-weight in weight shall be accepted by any Railway undertaking for conveyance by Passenger Train unless the consignor or his agent has made a prior arrangement with that undertaking for its acceptance, and the obligation and limitations imposed with respect to any Railway undertaking by or by virtue of any Act or other instrument determining its functions shall be relaxed accordingly.

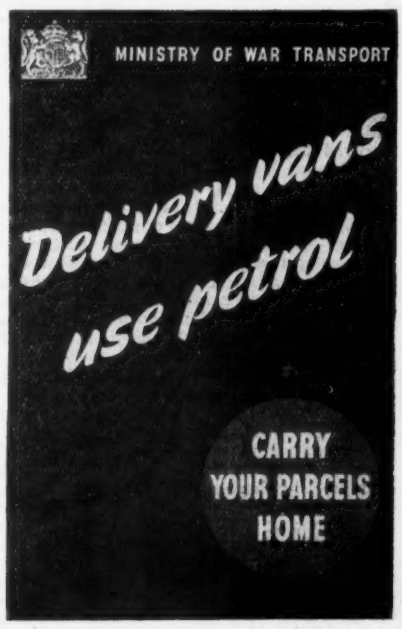
2. This order shall come into force on the sixteenth day of February, 1942, and may be cited as "The Limitation of Packages by Passenger Train Order, 1942."

Signed by order of the Minister of War Transport, this twenty-eighth day of January, 1942.

(Sgd.) H. W. W. FISHER,
Authorised by the Minister.

Further information may be obtained from any Railway Station.

RAILWAY EXECUTIVE COMMITTEE



Left and right: Two new posters issued by the Ministry of War Transport. Middle: The Railway Executive Committee poster announcing the limitation to 1 cwt. of packages by passenger train

to continue going to work. If on any occasion they are unable to report for duty at the proper time, they should do so at the earliest possible moment.

Rail Conveyance of Race-Horses Banned

In exercise of his powers under Regulation 55 of the Defence (General) Regulations, 1939, the Minister of War Transport has made the Transport of Horses Direction, 1942, whereby, on and after January 22, 1942, no race-horse shall be accepted for conveyance by rail, unless the consignor satisfies the railway company to whom the horse is tendered that the conveyance is not for the purpose or in contemplation of a race meeting. (*S.R. & O., No.* 105, 1942.)

Heavy Cuts in Leeds Local Train Services

Drastic cuts in local train services in the Leeds area, to make way for increasing wartime freight traffic were made by the L.N.E.R. on Monday last, February 23. On some sections of line the cuts amount to more than 50 per cent. of the trains. Although the list of cancellations is heavy, scarcely any businessmen's or workmen's trains have been affected. On the Leeds, Harrogate, and Northallerton line, four trains a day each way between Leeds and Harrogate have been suspended, including the 11 a.m. from Leeds to Northallerton. In all, 16 trains have ceased to run. On the Leeds and Ilkley route only three trains each way a day now run. Except for three trains each way, all on the Bradford-Harrogate line have been cancelled. The cut on the Harrogate and Knaresborough line is also severe, and four trains each way have ceased to run between Leeds, Wetherby, and Harrogate, and Wetherby, Church Fenton, and Selby.

New Railways in the Middle East

Some information has recently been released concerning new railways in the Middle East that have been built, or are now under construction, by the Allied Forces. Ten projects, totalling nearly 700 miles in length, are being carried out by railway construction units recruited from the Dominions. Incidentally, the value of these railways will remain when the war is ended. They have naturally been planned to meet Army needs, but their existence after the war will help to open up and develop Egypt, Palestine, Transjordan, Syria, the Sudan, and Eritrea. The most ambitious project is the construction of a standard-gauge railway 175-miles long between Palestine and Syria. The work is already well under way. Australian and South African railway units are grading the route and laying tracks. They are being aided by about 8,000 civilian labourers. Apart from its strategic value, this railway will complete the standard-gauge link from Western Europe to Egypt. Survey work was not begun until the Vichy Government was ousted from Syria last July. The northern section of the route traverses country of which about four-fifths is solid rock. It will be necessary to cut one tunnel through a mile of rock, and two, perhaps more, tunnels ranging up to 300 ft. in length. Two South African officers—a brigadier and a major—who in civil life are tunnelling experts in South Africa, were consulted on the best method of doing this work. They recommended that a tunnelling company should be raised from South African miners. General Smuts granted permission for this in accordance with the decision that non-combatant South Africans may serve outside Africa. He also agreed that South African railway construction companies, which are better equipped to undertake the constructional work involved than any other similar units in the Middle East, might be employed in building a special Syrian section of the line. South African miners promptly responded to the call for volunteers for a tunnelling company. It is nearly 1,000 strong, and every member is a man with many years of experience in deep mines.

Other Middle East railway construction works either completed or expected to be completed very soon are :—

The erection of a steel swing bridge across the Suez Canal, similar to the bridge built across the canal in the last war, but dismantled after the war in accordance with the decision of the canal authorities;

A railway link with Transjordan to facilitate communications from the Red Sea ;

A railway by-pass of the Nile shallows, which in the dry season hamper barge-borne traffic ;

Constructional work to increase the capacity of the present railway in southern Palestine ;

A railway from the Sudan to Eritrea ; and

An extension of the Western Desert railway, 108 miles long, enabling Eighth Army supplies to be rail-borne into areas of the desert where previously they were carried in motor lorries. This line is reported to be complete and at work. It is said to have been built by New Zealanders in about six months.

Trans-African Highways

The excellent shipping facilities available in peacetime, and the comparative smallness of normal traffic between the east and west coasts of the African continent, have acted as deterrents to the development of trans-African railways and roads. Nevertheless, there are various complete lines of communication available, some

Two new roads now linking west and north-east Africa

of them involving a combination of road, rail, and water. Moreover, since July, 1931, there has been a continuous chain of railways (all laid to the gauge of 3 ft. 6 in.—the standard for southern Africa) extending for more than 2,900 miles from Lobito (in Portuguese Angola) on the Atlantic Ocean to Beira on the Indian Ocean. This trans-African railway forms the subject of an illustrated article at pages 303 to 308 of the present issue. Further north, and entirely in territories under the control of the Allied Powers, there are now great twin roads which run across Africa from the west coast to the Sudan, of which comparatively little has been heard. These roads have played, and are expected to continue to play, an increasingly important part in the Allied war strategy. As shown on the accompanying sketch map, both roads begin at Duala in French Equatorial Africa. There is also a branch (not shown) from Takoradi on the Gold Coast. These great highways, built since 1940 by the labour of thousands of Africans, run in the one case through Fort Lamy, near Lake Chad, towards Khartoum, and in the other case through Ubangi-Shari to the Bahr el Ghazal. They are the African equivalent of the Burma Road, built by the labour of many thousands of Chinese, and they may well have at least as important an effect on the course of the war as the Burma highway. The Governor of the Province of Ubangi Shari in French Equatoria lately stated that the result of this gigantic construction scheme was that a great Allied army could be moved quickly across the continent from Egypt to the west coast, or *vice versa*. A large stream of essential supplies has been flowing across it for some time, and important works have been carried out at Takoradi and Duala to facilitate this flow. For this great help the Allies are indebted to the Free French, to Generals de Gaulle and Larminat, M. Eboué, and others, and Africa will have a great new permanent asset when peace returns.

Swiss Transit Traffic Through Spain

The Swiss motor lorry transport syndicate formed to carry transit goods through Spain, *en route* to and from Switzerland—the Autotransit Genossenschaft—has been working satisfactorily for some months past. Brief details of the undertaking, which has a nominal share capital of Sw. fr. 50,000 provided by the three constituent organisations, were given at page 511 of our November 14 issue. It is a non-profit-making concern, and the Swiss Federal Government has guaranteed two-thirds of the share capital in the event of loss. Spain undertook to supply the necessary motor fuel. Although 20 of the eventual 100 lorries left Switzerland on June 30 last for the French-Spanish frontier, it was not until August 14 that the first loaded trip across Spain was made, with 19 lorries. At Madrid the Spanish and Portuguese formalities took a fortnight to complete. From then to the end of 1941, 254 trips were made ; particulars as to these are given in the following table :—

Month	No. of trips	Goods imported (Metric tons)	Mileage covered Miles (km.)	Fuel consumed Gallons (approx.)
September	30	296	59,637 (96,034)	6,293
October	55	514	63,528 (102,300)	8,045
November	75	725	86,834 (139,830)	21,550
December	94	945	108,867 (175,310)	23.480

Goods imported from Portugal (originating overseas) included such commodities as cocoa, coffee, fruit preserves, fish preserves, olive oil, sugar, tropical fruits, and raw materials as wool, animal hair, wax, and turpentine. For political reason, no goods were conveyed through Spain in the reverse direction, from Switzerland to Portugal, a fact which increased the working costs very greatly, as no income was derived from the empty return trips. Despite this, the increase of the incoming freight, mainly towards the end of 1941, allowed the initial loss to be reduced by about two-thirds. Anxiety is caused by the increasing difficulty in the supply of motor fuel and lubricants, and the conversion of the lorries to producer-gas

working is now being considered. Wear and tear of both tyres and vehicles was heavy, as a result of the unsatisfactory state of the Spanish roads. Tyres had to be changed after an average life of only 10,000 km. (6,210 miles). To facilitate repairs, a bonded store of spare parts has been established at Madrid, embracing about 30,000 components, as well as lubricants, etc., apart from food for the drivers. Only one type of lorry is used, and parts are thus interchangeable.

Fewer Trains in Norway

Further curtailments of the passenger and goods train services in Norway came into force on February 1, as a result of the shortage of coal and rolling stock. On the Oslo-Bergen line, only three trains a week now operate in each direction. A similar reduction is proposed for the services on the Oslo-Trondheim line.

Bus Traffic Reductions in Stockholm

Stockholm bus mileage has been reduced by 19 per cent. This has been achieved partly by the discontinuance of a number of services and partly by reducing the length of other lines, as from the middle of January. Buses operate in the central part of the town for only seven hours daily, namely, from 6 to 9 a.m. and from 3 to 7 p.m. No buses ply in central Stockholm on Sundays.

German Rail Link to Riga

A German radio announcement of February 19 said that the Berlin-Königsberg-Riga railway was to be extended into Estonia. It is not very clear what is meant by this announcement, unless it is intended to refer to gauge conversion. On the outbreak of war the standard-gauge railway (4 ft. 8½ in.) from Berlin through Königsberg and Lithuania extended on Latvian soil as far as Riga. Northward of this point both the Latvian railways and the Estonian lines remained on the Russian gauge of 5 ft.

Military Passenger Trains in Germany

Traffic of members of the forces on leave accounted for a very considerable proportion of the general passenger traffic of the Reichsbahn during 1941. About half of the aggregate "D" train mileage was operated by what is now called in Germany *Schnellfronturlauberzüge* (fast trains for members of the forces on leave from the front), while about one-fifth of the balance was maintained by trains carrying a *Wehrmachtsteil* (portion reserved for members of the forces). Explanations of the customary abbreviations for such trains or portions of trains—such as SFR, DmW, and EmW—were given in our issue of January 2 (page 25).

The Wagons-Lits in Italy

According to information from Italy, interested circles there contend that about 40 per cent. of the share capital of the Compagnie Internationale des Wagons Lits et des Grands Express Européens is now in Italian ownership. It is therefore urged that the company's property in Italy should be seized and that all indications in foreign languages shown on the company's rolling stock, on menu cards, etc., should be abolished. It is also claimed that it would be "patriotic" to have the uniforms of the company's personnel in Italy tailored according to the "Italian fashion," thus "extirpating all foreign-looking traces" from the company's services.

Services Suspended in Unoccupied France

As a result of fuel and lubricant shortage, traffic on the following lines in unoccupied France was discontinued recently :—

No. 4 Region (South-western Region, ex P.-O.)—
Castillonnes—Casseneuil
Groléjac—Gourdon
Hautefort—Terrasson
No. 4 Region (South-western Region, ex Midi)—
Albi—Saint Juery
La Chapelle—Laurent—Saint Flour
Belvèze—Limoux
La Carlaret—Mirepoix
Condom—Castéra—Verduzan
Bourriot—Bergonce—Gabarret

The following lines, on which traffic was to have been resumed, still remain closed :—

No. 4 Region (South-western Region, ex P.-O.)—
Gouttières—Eygurande—Argentat—Salers
Confolens—Belfac
Saint Léonard—Anzances
Bonnat—Evaux
Cahors—Moissac
Libourne—Langon
No. 4 Region (South-western Region, ex Midi)—
Castelnau—Tarbes—Arreau—Saint Lary
Hagetmau—Pau
Saint Paul—Saint Antoine—Lavelanet—Bélesta
Auch—Lannemazan
Saint Juéry—Saint Afrique
Beaumont—Gimont
Gabarret—Eauze
Saint Girons—Oust

Traffic on Dutch Inland Waterways in 1941

Increasing traffic was handled by the Dutch inland waterways in 1941. According to information from Dutch sources, 73·3 per cent. of the country's goods traffic used the inland waterways in 1941, while the railways and roads shared between themselves the balance of 26·7 per cent. The position was very different in 1937, when only 50 per cent. of the country's goods traffic used the canals and rivers; the railways were responsible for 21·9 per cent., and the roads for 38·1 per cent.

Dutch road motor traffic has now been curtailed drastically as a result of the acute shortage of motor fuel.

Motor Traffic in Croatia

As a result of the severe shortage of fuel oil in Croatia, motor traffic is becoming more restricted. In towns, only one taxi to every 5,000 inhabitants may be kept at work. The sale of mineral oil to private persons has been discontinued.

Railway Service Reductions in Hungary

The operation of stopping passenger trains has been suspended in Hungary as from January 21, because of excessive snow and the prolonged period of intensive cold, according to a statement issued by the management of the Hungarian State Railways. Earlier reference to railway service reductions in Hungary was made at page 139 of our January 23 issue.

New Frontier Station Between Jugoslavia and Bulgaria

A further change occurred recently in the organisation of the frontier stations on the Belgrade-Nish-Sofia main line, after the substitution of Čiflik for Bela Palanka as the frontier station as reported in THE RAILWAY GAZETTE of October 17, 1941, page 393. Čiflik is now no longer a Bulgarian-occupied frontier station having been replaced by Staničenje station, 10 km. (6·2 miles) further to the east, although the actual border is close to Čiflik, and is actually 1 km. to the east of Čiflik station. Čiflik is now said to be in German-occupied territory. Staničenje, which the Bulgarians have renamed Staničane, is 64 km. (40 miles) to the east of Nish. Djurdjevo Polje station, 6 km. (3·7 miles) to the east of Čiflik, on Bulgarian-occupied territory, has been closed.

New Railway Link between Greece and Bulgaria

The 2-ft. gauge line between Kulata and Siderocastro (Demirhissar), built by the Bulgarian occupation authorities, was opened to civilian traffic on November 29 last. The distance between the two places is only 16 km. (10 miles), and Rupel, the only intermediate station, is 7 km. (4·3 miles) to the south of Kulata. The completion and opening of this narrow-gauge railway line establishes the shortest railway connection between Salonika and Sofia, but the value of the link is diminished by the fact that it entails breaks of gauge at Siderocastro (on the Salonika-Adrianople standard-gauge railway) and at Gorna Djumaia, the railhead of the standard-gauge line from Sofia. The new link was taken in hand last June, as recorded at page 68 of our July 18, 1941, issue.

In connection with the opening of this line, various stations on the Salonika-Adrianople railway were reopened to civilian traffic on December 1. These include the following (the new names given by the Bulgarians are in brackets) : Poroj granica (Poroj frontier station between Greece and the Bulgarian-occupied region), Komotini (Gjumjurdzina), Xanthi (Ksanti), Alexandropolis Nord (Dedeagatchsever), Alexandropolis Est (Dedeagatchistok), and Bodamo (Badoma).

New Belgrade-Salonika Road

Official German sources state that the Todt Organisation is at present building a new road between Belgrade and Salonika, some 700 km. (435 miles) in length and including about 80 new bridges. The rail distance between the two towns, *via* Nish and Skoplje, is 709 km. (440 miles), of which 620 km. (385 miles) are in Jugoslav territory. The Jugoslav Government road building programme of 1935 envisaged the construction of a motor road from Belgrade to the Jugoslav frontier at Devdelija (Ghevgheli) to the north of Salonika, and the first section of that road, namely, from Belgrade to Nish was already under construction in 1936. The credits voted for the realisation of the programme totalled 1,000,000,000 dinars, and first credit instalments for the Belgrade-Nish road aggregated 10,000,000 dinars up to the end of 1936. The road was planned to have a branch from Nish to Niška Banja (11 km.), a favourite Jugoslav watering place. The length of the Belgrade-Nish motor road (replacing the existing State-owned trunk road) would have been about equal to the rail distance between the two towns, namely, 248 km. (154 miles). The completion and modernisation into a first-class motor road of the State-owned trunk road from Nish *via* Skoplje to Devdelija was also envisaged in the Jugoslav road building programme.

Malayan Railways Re-opened

A Singapore dispatch to the official Japanese news agency states that the 700 miles long Federated Malay States railway running through the Malay peninsula down to Singapore was re-opened for traffic on February 18, after the completion of repairs to the Johore causeway. No fewer than 500 bridges of all sizes which were blown up by British troops in their retreat, it is stated, have been repaired by the Japanese.

Salvage Results on the L.N.E.R.

All the railway companies have been engaged in the salvage of a wide variety of scrap materials since the outbreak of war, and from time to time we have dealt with the materials which have been reclaimed on the various systems. At the present juncture, in common with all other business enterprises, particular attention, of course, is being directed to the salvage, and economy in the use, of paper of all kinds. Details which we have received recently from the London & North Eastern Railway show that from September 3, 1939, to September 30, 1941, no less than some 6,500 tons of paper had been salvaged on that company's system, and, of course, a very large quantity of envelopes and paper is re-used for internal correspondence, and is not included in that figure. Other materials which have been salvaged during the same period are as follow :

Iron and steel scrap	...	233,425 tons
Non-ferrous metals ...	...	6,709 ,,
Old rope and string	...	264 ,,
Sacking	...	294 ,,
Bottles	...	133 gross

Since March, 1941, empty ink bottles have been collected and returned to contractors, and by the end of 1941 no fewer than 3,416 ink bottles had been salvaged. Arrangements had been made with typewriter ribbon manufacturers for the return of empty spools, and from June, 1940, to the end of December, 1941, 9,404 spools had been recovered. Used torch batteries form another item to which employees of the L.N.E.R. have directed their attention, and to date over 1¼ tons of these have been salvaged. A very large amount of straw has been recovered and this has been used by the company for packing.

A few of the larger items of salvage which have been reclaimed by the L.N.E.R. include 100 ft. of iron railways at Manchester, and a mile of other railings weighing 30 tons ; disused cattle pens and loading docks in Essex ; and an obsolete 23-ton turntable at Harwich. During recent county salvage drives the L.N.E.R. has provided special salvage bins at hundreds of its stations, and has had special appeals broadcast over station loudspeakers.

A magnetic crane at work at one of the large salvage dumps which have been established on the L.N.E.R. system

Retired Railway Officers' Society Meeting

At the annual meeting of this society held at the Great Eastern Hotel, Liverpool Street, E.C., on February 10, Mr. J. F. Bradford (President) in the Chair, the report and accounts for the year 1941 were submitted and approved.

The report showed that, in spite of the curtailment of the society's activities due to the war, six bi-monthly meetings of members were held ; the average attendance was 20. A net decrease of nine members left a total membership of 120 at the close of the year—Life 5, Honorary 5, Ordinary 110. Three new members—Mr. F. R. Potter, late Superintendent of the Line, G.W.R., Mr. A. Howie, late Joint Accountant, S.R., and Mr. C. F. Slade, M.Inst.C.E., late District Engineer, L.N.E.R. —were elected. One member resigned and 11 members died. Mr. J. F. Bradford was unanimously elected President for a second term, and the Hon. Treasurer, Mr. J. W. Lovejoy, and Hon. Secretary, Major A. S. Mills, were re-elected. Lt.-Colonel J. S. Wilson and Mr. J. F. Gee were elected Hon. Joint Auditors.

In view of the enforced curtailment of the society's amenities due to the war, it was decided to reduce the entrance fee and the annual subscription from £1 1s. to 10s. 6d. in each case. During the past year Mr. C. A. Roberts, formerly Chief Goods Manager, G.W.R., having completed 20 years of membership, was elected a Life Member, and at the meeting Mr. A. E. Dolden, formerly Accountant, Great Eastern Railway and an Hon. Joint Auditor of the Society for 15 years, was similarly honoured. At this meeting also two new members—Mr. H. W. Payne, late Principal Assistant to Chief Goods Manager, G.W.R., and Mr. F. K. Pelly, formerly District Goods Manager, G.W.R., Birmingham, were proposed and elected. The death in recent months of the following six members has been reported :—

Mr. H. Goulborn, aged 93, formerly Assistant Superintendent of the Line, L. & N.W.R.

Mr. E. Watkin, aged 84, formerly General Manager, H. & B.R.

Mr. W. F. Pettigrew, aged 84, formerly Chief Mechanical Engineer, Furness Railway.

Mr. J. R. Ball, aged 79, formerly Estate Agent, L.M.S.R.

Mr. A. C. Cookson, aged 73, formerly Stores Superintendent, G.W.R.

Mr. F. R. Potter, aged 63, formerly Superintendent of Line, G.W.R.

The society continues to receive active support and retired railway officers who have not yet associated themselves with its activities will be heartily welcomed.

Questions in Parliament

Below are summarised Answers to Questions in Parliament affecting transport. The Minister concerned and the date of the Answer are given in parentheses.

Motor Horse-Boxes

I cannot say without detailed inquiry how many motor horse-boxes are being used to convey racehorses to race meetings. The programme of meetings under National Hunt Rules has been arranged on the understanding that there would be enough horses in training in the neighbourhood of the selected courses to provide the necessary competition. After March 7 the basic fuel ration for goods vehicles will be abolished and fuel will not be made available for taking horses to these meetings except over relatively short distances.—(Mr. P. J. Noel-Baker, Joint Parliamentary Secretary, Ministry of War Transport, February 11.)

Snow Clearance

The staffs of highway authorities are much depleted, and there has been difficulty in securing additional labour for snow clearance. The Minister of Labour has instructed his regional representatives to render every assistance in their power. Under arrangements already in force, much valuable assistance was rendered by the military authorities and the Royal Air Force with both personnel and plant for clearing the roads.—(Mr. P. J. Noel-Baker, February 12.)

Used Motor Vehicles

I am not aware of any instance of Departments of State disposing of used motor vehicles to dealers who subsequently sold them to other Departments of State at an enhanced price, but I am making inquiries. —(Sir Kingsley Wood, Chancellor of the Exchequer, February 10.)

Loudspeakers at Stations

Loudspeakers are already provided at a number of stations, but to install them in all stations would be difficult in view of the labour and materials required.—(Mr. P. J. Noel-Baker, February 12.)

Special Trains

Six special trains were used to bring officers of South-eastern Command to a lecture at the Savoy Cinema, Brighton, on January 31, and the total expenses incurred were approximately £3,000. It is not the case that nothing was said that could not have been conveyed to the officers in writing, and in view of the special circumstances of this lecture I cannot agree that transport facilities were wasted. The number of officers brought to the lecture by special trains was about 1,466.—(Captain D. H. Margesson, Secretary of State for War, February 17.)

STAFF AND LABOUR MATTERS

Railway Staff National Tribunal

The Railway Staff National Tribunal, as announced in our issue last week, commenced the hearing of the claims of the National Union of Railwaymen and the Railway Clerks' Association on February 16, and lasted for two days.

N.U.R. Claim

Mr. Marchbank, in presenting the claim of the National Union of Railwaymen, submitted a number of statements to the tribunal giving particulars of the grades covered by the claim, the Government training scheme, and particulars of household expenditure. He explained that the claim was not new but that a similar claim had been presented to the National Wages Board in 1931; in 1937 the union had presented a claim for a 50s. minimum to the tribunal which had resulted in a minimum rate of 45s. Again in 1939 the union had presented to the tribunal a claim for 50s., as a result of which minimum rates of 50s. London, 48s. industrial, and 47s. rural, were introduced, for male staff. He outlined the history of the negotiations and awards in connection with the war advance which is payable to railwaymen, and referred to the agreements as to the employment of female labour in place of men, stating that approximately 23,000 women were employed in place of men under these agreements.

Referring to the cost of living figures as published by the Ministry of Labour, Mr. Marchbank stated that he did not accept these figures as comprehensive as they took no account of changed standards and did not deal with the question as to whether or not the dietary was adequate. Accepting the Ministry's figures as a guide he said that they revealed that since September, 1939, there had been an increase of 30 per cent., which meant that in December, 1941, it would require 26s. a week to purchase what could have been obtained for 20s. in September, 1939, and a man receiving £3 a week when war broke out would now require £3 18s. to maintain the same standards. A man receiving 47s. would require 61s. 1d. and a man receiving 50s. would require 65s. The Government training scheme provided for a minimum rate of 65s. 6d., rising to 75s. 6d. for men of 21 years of age and over. He contrasted these rates with those of railwaymen.

He referred to the scheduling of the railway industry under the Essential Work Order which prevented the men finding more remunerative employment and said the tribunal could appreciate the dissatisfaction which this brought about.

R.C.A. Claim

Mr. Gallie, in presenting the claim of the Railway Clerks' Association, said that the membership of his association was 78,800. He said the Association was not unmindful of the Government's declaration in relation to the question of wages and prices contained in the White Paper published in July, 1941, but it could not accept all the reasoning, particularly in relation to the stabilisation of wages. He referred to the special war advance of £28 and said that in consequence of fluctuations in price levels the £200 maximum of the class 5 scale, plus the £28 war advance, was now worth only £178 and the application for a further increase of £20 was therefore not unreasonable.

The men in class 5, and particularly those on the maximum of class 5, he said, have seen their prospects of future advancement gradually disappear, and to support this statement he referred to a document which he submitted to the tribunal showing the number of men in each class in 1924 compared with the position in 1941. Another feature which he said was retarding promotion was the retention of men in the service beyond 60 years of age, and he suggested that the companies should require men of 60 to retire and bring them back on less important duties if necessary.

He referred to the railways, which are under Government control, as a Government department and compared the rates of pay of the railway clerks with those of the postal clerks.

Dealing with the claim on behalf of station masters and supervisors, he said the working conditions were very different from those of a clerk and he outlined the qualifications which men in these grades are required to possess, their responsibilities, and work.

Railway Companies' Reply

Mr. G. L. Darbyshire, in presenting the case of the railway companies, submitted the following statements to the tribunal:—

(1) Estimated cost of claims;
(2) Chart of cost of living index figures, 1915-1942;
(3) Conciliation staff with rates of pay of 60s. a week and over;
(4) Real wages of salaried staff, 1920 and present time;
(5) Net revenue, 1929-1941.

He told the tribunal that he was appearing on behalf of the Railway Executive Committee and gave an account of the basis of railway wages, tracing the history from the time of the National Agreements up to the present time with details of the negotiations leading up to the war advances paid to railway staff. The number of staff covered by the claim of the National Union of Railwaymen, he stated, was, conciliation staff 195,000 males and 750 females, and the salaried staff 3,500 males and 10,000 females. The numbers of staff coming within the claim of the Railway Clerks' Association were stated as class 5 clerical staff 14,800; class 5 station masters 500; class 5 supervisory staff 900; class 2 women clerks 3,400.

The cost of the claims was shown in the statement submitted to the tribunal as follows:—

	N.U.R. Claim £	R.C.A. Claim £	Total £
Direct cost	6,246,000	399,000	6,645,000
Cost of providing necessary differentials between grades	4,363,000	435,000	4,798,000
Cost of applying concession to other grades	4,646,000	42,000	4,688,000
Total ...	15,255,000	876,000	16,131,000

In his examination of the N.U.R. claim Mr. Darbyshire referred to decision No. 6 of the tribunal, which dealt with a claim by the union for a minimum wage of 50s., and he stated that the increases awarded by the tribunal in that decision went to the full extent in meeting the claim then put forward and brought the minimum rates of pay into conformity with standards in comparable occupations. He compared railway rates of pay with those provided by trade boards, pointing out that the advancements in the latter since the war generally did not exceed the advancement to the minimum rated staff on the railways. Reference was also made to agricultural labourers' rates, and it was pointed out that many of the previous rates were, for economic reasons, at a very low level, and for this reason it was suggested that a comparison which lay emphasis on the increase given since the war in relation to railway staff was not proper. A further point to be taken into account in this comparison was the prospects of promotion for the railway staff, which did not exist for the agricultural labourer.

He suggested that the cost of living index figure published by the Ministry of Labour was the best available criterion of the changes in the cost of living levels and there was no justification for paying less attention to those figures now than at any previous time. The rise in the cost of living had been met by the war advance, and could not therefore properly be prayed in aid in seeking an advance in peacetime rates. In connection with the inquiries conducted by the Ministry of Labour into working class expenditure he stated that these could not be taken to represent more than they purported to represent, and suggested that much more reliance could be placed on the Ministry of Labour estimate that food prices had increased by about 18 per cent. since the beginning of September, 1939.

The claim of the N.U.R. for a 60s. minimum included women staff and, on this, Mr. Darbyshire referred to decision No. 6 of the tribunal, which had awarded a lower minimum for women than for men. Such a principle, he said, had operated since women had been employed and there was no justification now for departing from that principle.

Dealing with the claim of the R.C.A., Mr. Darbyshire referred to the cost of living index figures at various dates and suggested that the real wages of the class 5 clerk at £200 had increased by 28·1 per cent., and that of the woman clerk at 60s. a week by 28 per cent. He could not agree that increased volume of work and changes in personnel affect the class 5 clerk to a greater extent than the staff in the higher classes, but, on the contrary, they fell with greater weight on the staff in the higher classes. The reduction in male staff and their replacement by female labour could not, he contended, properly be claimed as a justification for higher pay because the staff serving with the forces had their Army pay made up to their railway pay, and the substitution of staff serving with the forces was one which applied throughout industry generally and was not a circumstance to be met in terms of increased wages.

On the question of retention of staff beyond the normal retiring age he said that there had been always a substantial proportion of staff which had continued in the service for varying periods after 60 years of age up to 65. In the year immediately before the war there were 3,000 such persons as compared with 3,935 at the present time.

Mr. Darbyshire suggested that a claim for higher wages which was not otherwise justified, could not be justified because of the introduction of the Essential Work Orders, which were to prevent the loss of production due to unnecessary turnover of labour.

On the question of net revenue, which was estimated at £40 millions for 1941, Mr. Darbyshire suggested that a net revenue which exceeded only by slightly more than £2 millions one which was held by the tribunal in 1939 not to justify the full claim for a 50s. a minimum peacetime wage, could not be held to justify a wartime minimum wage of 60s., involving an estimated cost of over £14 millions.

Notes and News

L.M.S.R. "Baltic" Locomotives.—No. 11110, the last of the "Baltic" (4-6-4) type four-cylinder tank locomotives, the first of which was built at Horwich works in 1924 to the designs of Mr. George Hughes, first Chief Mechanical Engineer of the L.M.S.R., has been withdrawn from service.

Gloves for Industrial Purposes.—The Board of Trade announces that, under the Consumer Rationing Order, gloves suitable only for industrial purposes may be sold without the surrender of coupons provided the word "industrial" is indelibly marked on the back of each glove in a colour contrasting with that of the gloves. The same principles apply to mittens.

Argentine Crop Surplus.—The Argentine Ministry of Agriculture has issued revised figures for the exportable crop surplus. Wheat is now estimated at 6,598,000 tons, maize at 8,127,000 tons, and linseed at 2,195,000 tons. The previous report issued on January 24, gave the exportable surplus of wheat at 6,656,000 tons, maize 8,127,000 tons, and linseed at 2,225,000 tons.

Great Southern Railways (Eire).—For the 6th week of 1942 the Great Southern Railways (Eire) reports passenger receipts of £30,437 (against £33,686), and goods receipts of £59,608 (against £51,243), making a total of £90,045, against £84,929 for the corresponding period of the previous year. The aggregate receipts to date are passenger £185,801 (against £194,228), goods £373,988 (against £298,619), making a total of £559,789 (against £492,847).

Thomas Cook & Son Ltd.—Arrangements for the acquisition by the four main-line railway companies, through Hay's Wharf Cartage Co. Ltd., of the whole of the share capital of Thomas Cook & Son Ltd., to which reference was made in our issue last week, have been completed. The railways will not acquire any interest in Thomas Cook & Son (Bankers) Ltd., the subsidiary of Thomas Cook & Son Ltd. The banking business has been acquired by Grindlay & Co. Ltd., which is affiliated with the National Provincial Bank Limited.

Great Southern Railways.—An Order made by the Government of Eire under an Emergency Powers Order (No. 152), provides that, as from February 24, and for the duration of the emergency, the board of directors of the Great Southern Railways Company shall consist of a Chairman appointed by the government, and four directors representing the shareholders and elected in accordance with provisions contained in the Order. The new Chairman of the company, nominated by the Government, is Mr. A. P. Reynolds, Managing Director of the Dublin United Transport Co. Ltd.

E.P.T. and Postwar Problems.—Mr. A. B. Campbell, retiring President of the Manchester Chamber of Commerce, at the annual meeting in Manchester on February 9 said that it was difficult to see how industry was to face the postwar problems in a fit state to overcome them if the 100 per cent. rate of Excess Profits Tax was maintained. In spite of concessions that had been made, the basis of the calculation of standard profits in many instances proved a great hardship and left little, if anything, to go to reserves to meet future requirements. It was the future of our industrial and commercial structure which was at stake, and there was a danger of irretrievable damage being done unless more positive relief was forthcoming.

Swedish Train Accident.—Five Swedish soldiers were killed and 10 seriously injured when a Swedish military train ran into a stationary goods train near Haessleholm, Southern Sweden, early on February 12, according to a Stockholm despatch to the Official German News Agency. Several coaches of the military train were damaged. The collision was stated to be due to bad visibility and a blackout exercise in progress at the time.

Buenos Aires Transport Corporation.—A loan of 40,000,000 pesos to strengthen the Buenos Aires Transport Corporation was announced recently. The money is to be advanced by a banking group. One condition of the loan is the reduction of the interest service on the corporation's capital from 7 to 5 per cent. over a period of 8 years. The Argentine Minister of the Interior has now issued a decree authorising this financial operation between the Buenos Aires Transport Corporation, and the Compania Argentina Electricidad, the Compania Industrial Mercantil Americana, and the Credito Mobiliario Financiero Bracht. The money is to be used to purchase the remaining independent motorbus and *microbus* services in Buenos Aires.

English Electric Co. Ltd.—Mr. G. H. Nelson, Chairman of the company, at the ordinary general meeting, on February 18, said that he could assure shareholders that the works were fully occupied, and that the board had received heartening expressions of appreciation of what the company was doing and of the reliability of its promises. The directors recognised that the world after peace would have many problems, that no great manufacturing organisation would be immune from them, and that no one else could solve them. With a loyal and efficient team of technical staff and skilled workers, with a strong financial position and high reputation, they looked with confidence to playing a worthy part in the work of reconstruction, both at home and abroad, when the war was won.

Aroostook Valley Railroad Company.—Notice is given to holders of the first and refunding mortgage 4½ per cent 50-year gold bonds due July 1, 1961, that the amount in the sinking fund is $13,570, and that the Bankers' Trust Company, of New York, is prepared to receive until March 13, 1942, proposals for the sale to it of bonds secured by the mortgage sufficient in amount to exhaust the funds available. Proposals for sale must state the numbers and aggregate principal amount of the bonds offered for sale, and the price at which the bonds are offered. The amount to be paid in dollars for accepted bonds will be computed at the exchange rate for pounds sterling prevailing at the close of business on March 13, 1942. Accepted bonds should be delivered on March 24, on which date payment will be made.

Inquiry into Beighton Accident Opened.—The inquiry into the accident which occurred at Beighton, near Sheffield, on February 11, when the sides of several carriages in an L.N.E.R. train were ripped open, resulting in 14 deaths, was opened by Mr. J. L. M. Moore, for the Minister of War Transport, at Sheffield on February 18. The train was carrying 195 officers and other military ranks and 170 sailors; the latter escaped injury, but over 30 other persons were hurt. Evidence was given that eight coaches were damaged and that the train had come in contact with a steel plate overhanging from a wagon in an adjacent siding. The driver stopped, believing the communication cord had been pulled, but was unaware of the mishap until informed by a passenger. After evidence had been tendered as to the position of the wagon and load Mr. Moore decided to continue the proceedings in private.

Turf and Coal Mixture for Locomotives in Eire.—On the Birr-Roscrea branch line of the Great Southern Railways, locomotives are now fired with a mixture of 75 per cent. turf and 25 per cent. coal. This has been found satisfactory, and is to be extended to other branch lines.

British and Irish Railway Stocks and Shares

Stocks	Highest 1941	Lowest 1941	Prices Feb. 20, 1942	Prices Rise/Fall
G.W.R.				
Cons. Ord.	43¾	30¾	43½	+ ½
5% Con. Pref. ...	109½	83½	110½	—
5% Red. Pref. (1950)	105½	96½	106	—
4% Deb.	113¾	102½	114½	—
4½% Deb.	115	105¾	114½	—
4½% Deb.	121½	112	122½	—
5% Deb.	132	122	134	+ 1
2½% Deb.	70	62⅜	69	—
5% Rt. Charge ...	129½	116	130½	—
5% Cons. Guar. ...	128	110½	129½	—
L.M.S.R.				
Ord.	17½	11	18½	+ 1½
4% Pref. (1923) ...	53	33½	53	+ 1
4% Pref.	68½	48½	70	—
5% Red. Pref. (1955)	97⅞	77	96½	—
4% Deb.	105½	97	106½	—
5% Red. Deb. (1952)	110½	106½	109½	—
4% Guar.	100	85½	102½	+ 1
L.N.E.R.				
5% Pref. Ord. ...	3¾	2¾	3¾	+ ¼
Def. Ord.	2	1½	2¼	+ ¼
4% First Pref. ...	52½	33	52	+ 1
4% Second Pref. ...	19⅝	10	20	—
5% Red. Pref. (1955)	79½	52	82	—
4% First Guar. ...	90½	74½	92½	—
4% Second Guar. ...	80½	59	82½	—
3% Deb.	79½	68¾	80	—
4% Deb.	104	91½	104½	— ½
5% Red. Deb. (1947)	106	102½	104	—
4½% Sinking Fund Red. Deb.	103½	99½	102½	—
SOUTHERN				
Pref. Ord.	65½	43½	64½	+ 1
Def. Ord.	15⅝	9	16½	+ ¼
5% Pref.	107	77½	107½	—
5% Red. Pref. (1964)	107	89½	107	— ½
5% Guar. Pref. ...	128	111	129½	—
5% Red. Guar. Pref. (1957)	114¾	107½	114½	—
4% Deb.	112	102½	113½	—
5% Deb.	130½	119	133	—
4% Red. Deb. (1962-67)	108¾	102	107½	—
4% Red. Deb. (1970-80)	108¾	102½	107½	—
FORTH BRIDGE				
4% Deb.	99¾	90½	101½	—
4% Guar.	99	85½	102½	+ 1
L.P.T.B.				
4½% "A"	120⅛	109½	119½	—
5% "A"	130½	115½	129½	—
4½% "T.F.A." ...	103½	99½	100½	—
5% "B"	117	102	119½	—
"C"	46¼	28¾	40	—
MERSEY				
Ord.	24¾	19½	22½	—
4% Perp. Deb. ...	100	90	99½	—
3% Perp. Deb. ...	73½	63	72½	—
3% Perp. Pref. ...	58	51½	57	—
IRELAND				
BELFAST & C.D.				
Ord.	4	4	4	—
G. NORTHERN				
Ord.	14½	3	13½	— ½
G. SOUTHERN				
Ord.	14½	5	10	—
Pref.	17	10	16	—
Guar.	44	16	40*	— 3
Deb.	61	42	57	— 2

* ex dividend

OFFICIAL NOTICES

London Midland and Scottish Railway Company

NOTICE is hereby given that a SPECIAL GENERAL MEETING of the LONDON MIDLAND AND SCOTTISH RAILWAY COMPANY will, in compliance with the Standing Orders of Parliament, be held at Euston Station, London, N.W.1, on Tuesday, the 10th day of March, 1942, at 12 o'clock noon precisely for the purpose of considering and if so determined of approving the undermentioned Bill and Provisional Order :—

RAILWAY COMPANIES (THOS. COOK, AND SON LIMITED GUARANTEED) (HL)

An Act to empower the Great Western Railway Company the London and North Eastern Railway Company the London Midland and Scottish Railway Company and the Southern Railway Company to give guarantees and to make financial and other arrangements in connection with or arising out of the acquisition by Hay's Wharf Cartage Company Limited of the share capital of Thos. Cook and Son Limited ; and for other purposes.

LONDON MIDLAND AND SCOTTISH RAILWAY PROVISIONAL ORDER.

A Provisional Order to vary certain provisions of the Caledonian Railway (Grangemouth Harbour) Act 1876 and the Caledonian Railway Order 1910 ; and for other purposes.

THOMAS ROYDEN, Chairman.
G. R. SMITH, Secretary.

Euston Station,
London, N.W.1.
23rd February, 1942.

Assistant Accountant

REQUIRED for the Gold Coast Government Railway for two tours of 12-24 months with possible permanency. Salary £400, rising to £720. Free passages and quarters. Candidates not under 30 (unless medically exempt from military service) and not over 40, must have a good practical knowledge of commercial book-keeping and accounts, preferably with a Railway or Transport Company. Write stating age and full particulars of qualifications and experience, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting the reference. M/9903.

Railway and Other Reports

London Midland & Scottish Railway Company.—The net revenue of the company under the revised financial arrangements with the Government for the year 1941 is £14,749,698, and with the addition of the net revenue from sources outside these financial arrangements, the total net revenue for the year is £15,250,211 or an increase of £543,511 as compared with the total net revenue for the year 1940. After setting aside £400,000 for wartime contingencies, and with the addition of £166,135 brought forward from 1940, there is a total of £15,016,346 available for interest on debenture stocks and dividends on share capital. At the meeting of the board of the company on February 18 it was decided to recommend the following dividends to be paid on March 18, and to carry forward £198,744 to 1942 :—4 per cent. guaranteed stock, 4 per cent. preference stock, and 4 per cent. preference stock (1923), at £2 per cent. actual, less income tax at 10s. in the £, making with the interim payment £4 for the year 1941 ; ordinary stock at £2 per cent. actual, less income tax at 10s. in the £ for the year 1941.

Southern Railway Company.—For the year 1941 the total net revenue amounts to £6,934,260, an increase compared with that for the year 1940 of £178,470. The balance brought forward from the previous year was £91,930, making the total sum available for distribution £7,026,190. After meeting the interest and dividends on the pre-ordinary stocks the amount available for dividend on the ordinary stocks for the year is £2,031,745. The directors have resolved to recommend the proprietors to declare the following dividends :—

A final dividend of 2½ per cent. on the preferred ordinary stock, making, with the interim dividend of 2½ per cent. already paid 5 per cent. for the year ; 1¾ per cent. for the whole year on the deferred ordinary stock.

For the previous year a dividend of 5 per cent. was paid on the preferred ordinary stock, and 1¼ per cent. was paid on the deferred ordinary stock. The balance carried forward is £101,336, compared with £91,930. It is proposed to pay the dividends, less income tax, at the rate of 10s. in the £ on March 31.

London & North Eastern Railway Company.—The revised financial arrangements with the Government provide for fixed annual payments to the controlled undertakings to be made as from December 31, 1940. The fixed annual sum receivable by the London & North Eastern Railway Company is £10,136,355, to which must be added the net result of transactions not coming within the scope of the pool amounting to £510,672, making a total of £10,647,027, and showing an increase compared with the net revenue of the company for the year 1940 of £296,035. The balance brought forward from the previous year was £85,341, making the total sum available for distribution £10,732,368. After meeting the interest on the debenture stocks and the dividends on the guaranteed stocks, and setting aside £300,000 to the fund for contingencies, the directors recommend that, subject to final audit, dividends be paid as under :—

A final dividend of 2 per cent. on the 4 per cent. first preference stock, making, with the interim dividend of 2 per cent. already paid, 4 per cent. for the year ;

A final dividend of 2½ per cent. on the 5 per cent. redeemable preference stock (1955), making, with the interim dividend of 2½ per cent. already paid, 5 per cent. for the year ; and

A dividend at the rate of 2⅜ per cent. for the whole year on the 4 per cent. second preference stock ; in each case less income tax at 10s. in the £, leaving a balance of £86,675 to be carried forward. Warrants for dividends on the preference stocks will be posted on March 18.

Great Western Railway.—The net revenue of the company for the year 1941 under the revised financial arrangements with the Government is £6,670,603, and this together with the net revenue from other sources not coming within the scope of the guaranteed payment gives a total of £6,931,767, an increase of £137,780 compared with the net revenue of the company for the year 1940. The sum available for distribution, including the balance of £289,129 brought forward from the previous year, is £7,220,896 After appropriating £250,000 to the contingency fund and meeting the interest and dividends on the pre-ordinary stocks, there remains a balance of £1,981,127 and the directors have decided to recommend the payment of a dividend for the half-year ended December 31, 1941, of £2 10s. per cent. on the consolidated ordinary stock, making £4 per cent. for the year, leaving a balance to be carried forward of £263,938. The dividend warrants will be posted on or about March 18.

London Passenger Transport Board.—The net revenue of the board for the year 1941, after giving effect to the estimated operation of the financial arrangements provided for in the Railway Control Agreement, together with a profit on the realisation of investments and the balance of the London Transport " C " stock interest fund, amounts to £4,844,659. The payment of interest on the prior charge London Transport stocks required £4,080,447, leaving, for the service of London Transport " C " Stock a balance of £764,212.

The board announces that a final payment of interest on London Transport " C " stock for the year ended December 31, 1941, will be made by the board's registrars on March 20, 1942, to all holders of London Transport " C " stock registered or inscribed in the books of the Bank of England at the close of business on February 23, 1942, of 2½ per cent. actual less income tax at 10s. in the £, making with the interim payment of ¾ of 1 per cent. actual on August 22, 1941, a total of 2⅞ per cent. for the year. The sum of £25,371 remaining after the payment of this interest, being less than ½ of 1 per cent. on the London Transport " C " stock outstanding, in accordance with Section 39 (7) (ii) of the London Passenger Transport Act, 1933, has been transferred to the London Transport " C " stock interest fund.

The board also announces that it will shortly transmit to the Minister of War Transport the report and copies of the statement of accounts and of the auditors report for the year ended December 31, 1941. Copies of the annual report and summary of accounts will not be posted to the stockholders because of the need to conserve paper, but copies will be on sale at the price of 6d. at the offices of the board, 55, Broadway, Westminster, S.W.1, on and after March 13, 1942.

The following is a tabulation of the dividend distributions of the four main-line railway companies over a twelve-year period :—

	1930 %	1931 %	1932 %	1933 %	1934 %	1935 %	1936 %	1937 %	1938 %	1939 %	1940 %	1941 %
Great Western												
Ord. stock	5½	3	3	3	3	3	3	4	¼	3½	4	4
London Midland & Scottish												
Ord. stock	2	½	Nil	Nil	Nil	Nil	1½	1½	Nil	1½	1½	2
London & North Eastern												
Pref. ord. 5% ...	½	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2nd pref. 4% ...	4	1	Nil	Nil	Nil	Nil	½	1⅜	Nil	⅜	2	2⅜
1st pref. 4% ...	4	4	1	2	3½	3½	4	4	Nil	4	4	4
Red. pref. 5% ...	5	5	1¼	2⅛	4⅛	4⅛	5	5	Nil	5	5	5
Southern												
Def.	5	4	1	3	4	5	5	5	5	5	5	5
Pref.	1½	Nil	Nil	Nil	Nil	Nil	½	1½	Nil	1½	1½	1½

Railway Stock Market

Inactive conditions have continued to rule in Stock Exchange markets, although in most directions the general undertone was steadier. The dominating influence has been to await the next war developments, but on the other hand, helpful factors were provided by the rise in British Funds and the Cabinet changes which also tended to assist sentiment. There has been a certain amount of advance reinvestment in respect of the large sums arising from the requisitioning of India Government stocks. Indications are that home railway prior charges, which still offer yields that compare favourably with those obtainable on other high class investments, will continue to be favoured. A good impression has been created by the dividend announcements, but due mainly to the deduction of dividends from prices, the junior stocks are lower on balance at the time of writing. Had general market conditions been reasonably active, there seems little doubt that junior stocks would have continued in demand following the dividend announcements, bearing in mind that the latter suggest that the main-line companies intend to follow the policy of providing over a period of years for contributions in respect of the war damage scheme. There is, however, a disposition to await definite confirmation of this, although it is generally realised that the yields obtainable on railway junior stocks are well in excess of those ruling on other groups of equity securities. The yield on L.N.E.R. second preference is fully 12 per cent., that on Southern deferred and L.M.S.R. ordinary approximately 11 per cent., and Great Western ordinary returns approximately 9½ per cent. and Southern preferred nearly 8 per cent. The return on L.M.S.R. 1923 preference and on L.N.E.R. first preference would also appear to be attractive. Moreover, L.N.E.R. first and second guaranteed, and L.M.S.R. guaranteed, would seem to be moderately priced, bearing in mind their investment merits. There is a growing assumption that, due to the fact that debentures are in small supply, the disposition will be for increasing attention to attach to these guaranteed stocks. The prevailing belief is that if, as seems likely, war damage payments are to be spread over a lengthy period of years, dividends on the junior stocks may very well be maintained at the rates announced for the past year, so long as the financial agreement with the Government remains in force and air raid damage is not very heavy.

Maintenance of the Great Western dividend at 4 per cent., although in accordance with general expectations, was slightly below some estimates, and the ordinary stock is 40¾ xd. at the time of writing, compared with 44½ a week ago. Great Western preference and guaranteed stocks, which are also xd. were quoted at 109 and 128½ respectively; the 4 per cent. debentures remained at 114. Minor fluctuations were shown in L.M.S.R. ordinary, which, however, after going "ex" the dividend, eased from 18 to 17½, which compares with 18½ a week ago. L.M.S.R. senior and 1923 preference, also xd., were maintained at 69 and 52 respectively; the 4 per cent. debentures remained at 106, and the guaranteed stock was 101½ xd. Among L.N.E.R. issues, the second preference was 19½ xd., as against 19¾ a week ago; the first preference improved on balance from 51 to 52 xd. Moreover, L.N.E.R. first guaranteed was maintained at 92½, and the second guaranteed at 82½; the 4 per cent. debentures kept at 104½, and the 3 per cent. debentures at 79½. Elsewhere, Southern deferred was 15⅜ xd., compared with 16½ a week ago, and the preferred stock was 63 xd., compared with 63½. Southern guaranteed was fractionally lower at 128½ xd., as was the preference stock at 106½ xd.; the 4 per cent. debentures remained at 114. The slight reduction from 3 per cent. to 2⅞ per cent. in the dividend came as a minor disappointment to the market, and London Transport "C" has reacted on balance from 40½ to 39 xd. at the time of writing; the "B" stock was fractionally lower at 119¼.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1941-42	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941	No. of Weeks	Aggregate Traffics to date: Totals: This Year	Aggregate Traffics to date: Totals: Last Year	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1941	Prices: Lowest 1941	Prices: Feb. 20 1942	Yield% (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	15.2.42	14,700	— 2,450	7	136,230	118,770	+ 17,460	Ord. Stk.	10¾	3½	10	Nil
	Argentine North Eastern	753	14.2.42	ps. 143,100	+ ps. 28,600	33	ps. 5,904,300	ps. 4,989,300	+ ps. 915,000	,,	4	1	3¼	Nil
	Bolivar	174	Jan.,1942	4,960	+ 1,760	5	4,960	3,200	+ 1,760	6 p.c. Deb	5	5	7	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	2½	10¼	Nil
	Buenos Ayres & Pacific	2,801	14.2.42	ps.1,799,000	— ps.103,000	33	ps.45,482,000	ps. 42,400,000	+ ps.3,082,000	Ord. Stk.	7¾	1½	5	Nil
	Buenos Ayres Great Southern	5,082	14 2 42	ps.2,878,000	+ ps.121,000	33	ps.77 679,000	ps.68,546,000	+ ps.9,153,000	Ord. Stk.	10¾	3½	8½	Nil
	Buenos Ayres Western	1,930	14 2 42	ps. 837,000	— ps.127,000	33	ps.27 849,000	ps.23,468,000	+ ps.4,381,000	,,	9	2½	7½	Nil
	Central Argentine	3,700	14.2.42	ps. 1,809.100	— 206,100	33	ps.58,154,550	ps. 48,101,450	+ ps.10,053,100	,,	8½	2½	5½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	2½	½	2½	Nil
	Cent. Uruguay of M. Video	972	7.2 42	ps. 25,313	+ 207	32	741,946	687,962	+ 53,984	Ord. Stk.	9½	1	6	Nil
	Costa Rica	188	Dec., 1941	21 753	— 2.770	26	135 989	118 038	+ 17 951	Stk.	15½	11½	13½	14½
	Dorada	70	Jan., 1942	10,600	— 1,600	5	10,600	12,200	— 1,600	I Mt. Db.	97	97	90½	6½
	Entre Rios	808	14.2.42	ps.206,200	—	33	ps. 8,598,400	ps. 7,178,400	+ ps.1,420,000	Ord. Stk.	6½	½	5	Nil
	Great Western of Brazil	1,030	14.2.42	11 900	— 900	7	82,300	81,900	+ 400	Ord. Sh.	11/-	1/-	⅜	Nil
	International of Cl. Amer.	794	Dec.,1941	$519,619	+ $73,379	52	$5,617,278	$5,544,439	— $72,839	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref	⅜	6d.	½	Nil
	La Guaira & Caracas	22¾	Jan.,1942	6,430	+ 305	5	6 430	6,125	+ 305	—	—	—	—	—
	Leopoldina	1,918	14 2 42	30.993	+ 4,530	7	191,489	157,493	+ 33,996	Ord. Stk.	4	½	3½	Nil
	Mexican	483	14.2.42	ps. 330,000	+ ps.24,200	7	ps. 2,067,700	ps. 1,887,100	+ ps. 180,600	,,		½	1	Nil
	Midland of Uruguay	319	Dec.,1941	12,418	— 272	26	83,163	69,877	+ 10,286	—	—	—	—	—
	Nitrate	386	15 2 .42	4,560	+ 1,524	7	15,596	13 288	+ 2,308	Ord Sh.	66⅜	1¼	3⅞	3⅜
	Paraguay Central	274	14 2.42	$3,240,000	+ $488,100	33	$112,914,100	$108,539,000	+ $4,375, 100	Pr. Lt. Stk.	43/-	29	42½	7
	Peruvian Corporation	1,059	Jan , 1942	80,429	+ 12,609	31	512,971	461,145	+ 51,826	Pref.	6½	1⅛	8	Nil
	Salvador	100	Dec .1941	c117,100	+ c32,000	26	c361 172	c 288 683	+ c72 489	—	—	—	—	—
	San Paulo	153½	8.2.42	37,000	+ 463	6	188,750	195,726	— 6,976	Ord. Stk.	52	24½	43½	4
	Taltal	160	Jan., 1942	3.135	+ 840	31	30,895	19,435	+ 11,460	Ord. Sh.	1	6/-	1½	Nil
	United of Havana	1,346	14.2.42	50,476	+ 13,178	33	689,195	550,610	+ 138,585	Ord. Stk.	2½	½	3	Nil
	Uruguay Northern	73	Dec.,1941	1,268	— 190	26	7,938	7,089	+ 849	—	—	—	—	—
Canada	Canadian National	23,560	14.2.42	1,222,200	+ 245,400	7	7,703,400	6,143,200	+ 1,560,200	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—	Perp. Dbs	94	85½	—	—
	Grand Trunk	—	—	—	—	—	—	—	—	4 p c. Gr	104⅝	99½	—	—
	Canadian Pacific	17,139	14 2 42	889,600	+ 194,800	7	5,523,000	4,302,400	+ 1,220,600	Ord. Stk	13⅜	7⅛	11½	Nil
India†	Barsi Light	202	30.11.41	3,525	— 135	34	115,072	105,555	+ 9,517	—	—	—	—	—
	Bengal & North Western	2 099	Jan , 1942	259,350	— 20,161	18	1,033,450	1,036,512	+ 46,938	Ord. Stk.	345	253	339½	4½
	Bengal-Nagpur	3,269	10 10 41	234,750	— 14.914	27	4,993,938	4,533,077	+ 460 861	,,	101	95⅜	100½	4
	Madras & Southern Mahratta	2.939	30 11 41	190,350	+ 22,380	34	4,786.245	3,985,424	+ 800,821	,,	105⅞	101½	102½	7⅛
	Rohilkund & Kumaon	571	Jan ,1942	56,850	— 10,343	18	210,675	220,257	— 9,582	,,	342	290	342½	4½
	South Indian	2,402	30 11.41	140,022	+ 23,628	34	3,528,581	3,037,730	+ 490,851	,,	100	87	99½	3½
Various	Beira	204	Dec.,1941	68,922	—	13	219 615	—	—	—	—	—	—	—
	Egyptian Delta	610	31.10.41	11,565	+ 1,176	29	168,612	117,730	+ 50,882	Prf. Sh.	1½	29/-	2½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	68	45	50	7
	Midland of W. Australia	277	July, 1941	18.648	+ 7,251	4	18.648	11 397	+ 7 251	Inc. Deb	90½	85½	89½	6½
	Nigerian	1,900	29 11 41	76 668	+ 11.298	34	1,827,367	1,314,395	+ 512,972	—	—	—	—	—
	Rhodesia	2,442	Dec. 1941	469 566	—	13	1,423,208	—	—	—	—	—	—	—
	South Africa	13,291	27.12.41	709 095	+ 96,411	39	29,710,075	26,805 882	+ 2,903,193	—	—	—	—	—
	Victoria	4,774	Sept. 1941	1,052,397	+ 161,210	13	3,053,542	2,648,904	+ 404,638	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ¼ Argentine traffics are given in pesos
† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend